

Let's Do Mathematics

Book 4



Easy Path Series

Revised Edition 2004



Ministry of Education, Guyana

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LET'S DO MATHEMATICS

BOOK 4

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A GOG/IDB Primary Education Improvement Programme

Easy Path Series

FOREWORD

One welcomes the publication of this series of textbooks as part of the Primary Education Improvement Project funded by the Inter-American Development Bank and the Government of Guyana.

This series of texts has been long in planning, writing and producing. In the process however, many Guyanese have developed skills in textbook writing and publication. This will serve Education well in the future.

We congratulate all those responsible for the production of these texts. They have done a good job. Guyanese children at the Primary level, and, indeed, the society as a whole, will be the beneficiaries of their labour.

Thanks to the Inter-American Development Bank for its financial support. Primary Education in Guyana will benefit considerably with the availability of relevant reading material.

Dale A. Bisnauth
Senior Minister of Education
and Cultural Development

NOT FOR SALE

PREFACE

I **hear** and I forget
I **see** and I remember
I **DO** and I understand
A Chinese Proverb.

Let's Do Mathematics is part of the Easy Path series, a, GOG/IDB Primary Education Improvement Project.

The success of this project hinges to a great extent on the commitment and dedication of the writing team and the committee, both of which comprise experienced Primary School teachers; lecturers of the Cyril Potter College of Education and the University of Guyana; Curriculum Writers and Officers of the Ministry of Education.

This series caters for the requirements of the Primary Schools' Curriculum in Guyana and attempts to provide teachers and pupils with a clearer understanding of the topics/concepts listed. It comprises pupils' books for six (6) levels, accompanied by Teachers' Manuals and is designed to foster greater interest in Mathematics teaching and learning.

At each level the book is organized into thirty (30) units which suggest a year's work. There are six (6) 'Let us look back' pages at each level. These are meant to be a revision of concepts previously taught. The results of these must therefore be carefully analyzed and used to the pupils' advantage. Care should be taken to ensure that each concept is fully accomplished before attempting a higher level concept.

A deliberate attempt was made to present the years' work in sequence.

The emphasis throughout the course is a hands on approach. Great care has been taken to ensure that the books are simple to follow and are related to the likely experiences of the pupils.

WHY MATHEMATICS?

So that recipes may be doubled
meals may be ordered
food/money may be divided
time/plants may be estimated and measured
prices in shops and stores may be compared
graphs/charts may be interpreted
bills may be paid
change calculated
and love may be shared.

LET'S DO MATHEMATICS

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UNIT 1 ADDITION and SUBTRACTION

Let us see how much we remember from Grade 3.
Here is your first problem.

$$\begin{array}{r} 134 \\ + 263 \\ \hline \end{array}$$

Susan worked it like this:

$$\begin{aligned} 134 &= 100 + 30 + 4 \\ 263 &= 200 + 60 + 3 \\ &= 300 + 90 + 7 \\ &= 397 \end{aligned}$$

Peter worked it like this:

	H	T	O
	1	3	4
+	2	6	3
	3	9	7

Remember, when adding, we start with the ones.

Look at this problem.

$$\begin{aligned} 156 &= 100 + 50 + 6 \\ + 217 &= 200 + 10 + 7 \\ &= 300 + 60 + 13 \\ &= 300 + 60 + 10 + 3 \\ &= 300 + 70 + 3 \\ &= 373 \end{aligned}$$

Peter worked a shorter way.

	H	T	O		T	O
	1	5	6		1	5
+	2	1	7		6	
	3	7	3		7	

Exercise A

Now try these:

1. a)
$$\begin{array}{r} 163 \\ + 215 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 672 \\ + 127 \\ \hline \end{array}$$

c) $823 + 146$

d) $320 + 468$

2. a)
$$\begin{array}{r} 146 \\ + 219 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 362 \\ + 428 \\ \hline \end{array}$$

c) $477 + 414$

d) $236 + 428$

3. a)
$$\begin{array}{r} 538 \\ + 191 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 384 \\ + 263 \\ \hline \end{array}$$

c) $593 + 241$

d) $772 + 143$

Exercise B

1. a)
$$\begin{array}{r} \$425 \\ + \$132 \\ \hline \end{array}$$

b)
$$\begin{array}{r} \$672 \\ + \$149 \\ \hline \end{array}$$

c) $\$144 + \423

d) $\$788 + \125

2. a)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 5 \quad 25 \\ + 3 \quad 10 \\ \hline \end{array}$$

b)
$$\begin{array}{r} \text{m} \quad \text{cm} \\ 8 \quad 38 \\ + 1 \quad 25 \\ \hline \end{array}$$

c) $7 \text{ m } 37 \text{ cm} + 2 \text{ m } 48 \text{ cm}$

d) $3 \text{ m } 34 \text{ cm} + 3 \text{ m } 36 \text{ cm}$

3. a)
$$\begin{array}{r} \text{kg} \quad \text{g} \\ 4 \quad 284 \\ + 1 \quad 111 \\ \hline \end{array}$$

b)
$$\begin{array}{r} \text{kg} \quad \text{g} \\ 5 \quad 176 \\ + 3 \quad 225 \\ \hline \end{array}$$

c) $6 \text{ kg } 139 \text{ g} + 3 \text{ kg } 152 \text{ g}$

d) $7 \text{ kg } 215 \text{ g} + 2 \text{ kg } 198 \text{ g}$

Now let us subtract.

Look at the sum:

a.
$$\begin{array}{r} 565 \\ - 137 \\ \hline \end{array}$$

$$\begin{aligned} &= 500 + 60 + 5 = 500 + 50 + 10 + 5 \\ &= 100 + 30 + 7 = 100 + 20 + 10 + 7 \\ &= 500 + 50 + 15 \\ &\quad - 100 + 30 + 7 \\ &\quad \hline &\quad 400 + 20 + 8 \\ &= 428 \end{aligned}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{ccc} \text{H} & \text{T} & \text{O} \\ 5 & 6 & 5 \\ - 1 & 3 & 7 \\ \hline 4 & 2 & 8 \end{array}
 \end{array}$$

Exercise C

Now try these:

$$\begin{array}{r}
 \text{1. a) } \begin{array}{r} 345 \\ - 123 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{r} 657 \\ - 324 \\ \hline \end{array}
 \end{array}$$

$$\text{c) } 436 - 214$$

$$\text{d) } 369 - 259$$

$$\begin{array}{r}
 \text{2. a) } \begin{array}{r} 436 \\ - 118 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{r} 745 \\ - 327 \\ \hline \end{array}
 \end{array}$$

$$\text{c) } 763 - 217$$

$$\text{d) } 624 - 417$$

$$\begin{array}{r}
 \text{3. a) } \begin{array}{r} 729 \\ - 163 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{r} 465 \\ - 193 \\ \hline \end{array}
 \end{array}$$

$$\text{c) } 367 - 186$$

$$\text{d) } 450 - 160$$

Exercise D

$$\begin{array}{r}
 \text{1. a) } \begin{array}{r} \$325 \\ - \$112 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{r} \$550 \\ - \$320 \\ \hline \end{array}
 \end{array}$$

$$\text{c) } \$479 - \$362$$

$$\text{d) } \$795 - \$236$$

$$\begin{array}{r}
 \text{2. a) } \begin{array}{r} \text{m} \quad \text{cm} \\ 5 \quad 32 \\ - 3 \quad 21 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{r} \text{m} \quad \text{cm} \\ 3 \quad 34 \\ - 1 \quad 29 \\ \hline \end{array}
 \end{array}$$

$$\text{c) } 5 \text{ m } 36 \text{ cm} - 4 \text{ m } 23 \text{ cm}$$

$$\text{d) } 6 \text{ m } 21 \text{ cm} - 4 \text{ m } 14 \text{ cm}$$

$$\begin{array}{r}
 \text{3. a) } \begin{array}{r} \text{kg} \quad \text{g} \\ 9 \quad 395 \\ - 4 \quad 123 \\ \hline \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{b) } \begin{array}{r} \text{kg} \quad \text{g} \\ 7 \quad 432 \\ - 4 \quad 156 \\ \hline \end{array}
 \end{array}$$

$$\text{c) } 5 \text{ kg } 325 \text{ g} - 2 \text{ kg } 175 \text{ g}$$

$$\text{d) } 8 \text{ kg } 130 \text{ g} - 1 \text{ kg } 93 \text{ g}$$

Count and write numbers to 1000



Exercise E

1. Read and complete:

$900 + 1 = 901$ nine hundred and one.

$900 + 2 = 902$ nine hundred and two.

$900 + 4 =$

$900 + 6 =$

$900 + 7 =$

2. Complete these:

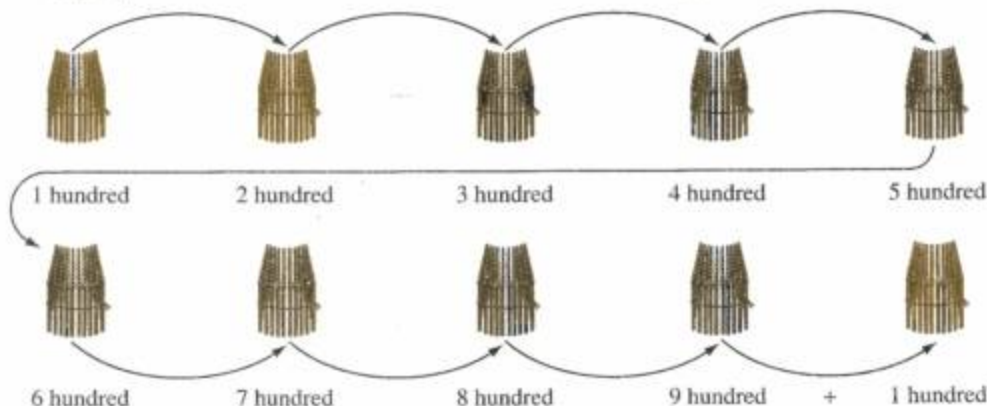
$900 + 59 =$

$900 + 80 =$

$900 + 90 =$

$900 + 99 =$

$900 + 100 =$



9 hundreds + 1 hundred = 10 hundreds or one thousand

one thousand is written — 1000

Exercise F

Complete these:

1. (a) 2 4 — — — — —
- (b) 3 — — 12 — — —
- (c) 5 10 — — — — 35
- (d) — 20 30 40 — — —
- (e) 100 200 — — — — —

2. Keep increasing these numbers by 10.
Make five larger numbers.
The first is done for you.

a) 10, 20, 30, 40, 50, 60

b) 25 — — — — —

c) 13 — — — — —

d) 140 — — — — —

3. Decrease these by 5.
Make five smaller numbers.
The first is done for you.

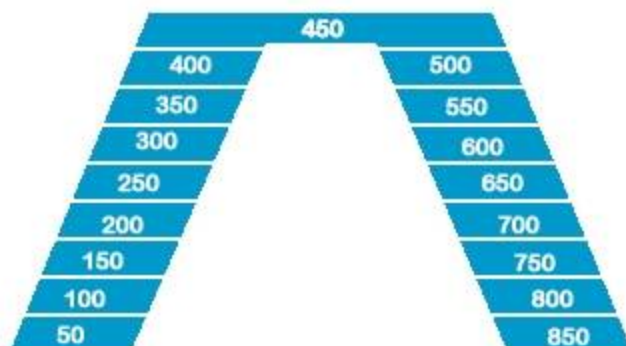
a) 30, 25, 20, 15, 10, 5

b) 55 — — — — —

c) 75 — — — — —

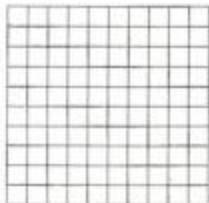
d) 90 — — — — —

4. Climb up from one side and run down the other as fast as you can.



UNIT 2 PLACE VALUE; THOUSANDS

This group of squares shows one hundred.
Group 10 of these.
10 hundreds = 1 thousand
1 thousand is written 1000.



1000 is the smallest
four-digit numeral

Look at how 1000 is shown on the place value chart below.

THOUSANDS	HUNDREDS	TENS	ONES
1	0	0	0

Which digit is in the ones place?

Which digit is in the tens place?

Which digit is in the hundreds place?

Which digit is in the thousands place?

What is the place value of the first zero?

What is the place value of the second zero?

What is the place value of the third zero?

1000 in expanded form is:

$$\begin{aligned} &1 \text{ thousand} + 0 \text{ hundreds} + 0 \text{ tens} + 0 \text{ ones} \\ &= 1000 + 0 + 0 + 0 \end{aligned}$$

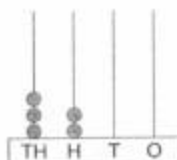
Exercise A

Write the numeral names for these:

1. 2000 3. 3000 5. 6000
2. 5000 4. 7000 6. 9000

Exercise B

1. 3000 = ____ thousands + ____ hundreds + ____ tens + ____ ones
2. 5000 = ____ thousands + ____ hundreds + ____ tens + ____ ones
3. 2000 = ____ thousands + ____ hundreds + ____ tens + ____ ones
4. 1000 = ____ thousands + ____ hundreds + ____ tens + ____ ones
5. 6000 = ____ thousands + ____ hundreds + ____ tens + ____ ones
6. 4000 = ____ thousands + ____ hundreds + ____ tens + ____ ones



Look at the abacus.

How many objects are in the thousands place?

How many objects are in the hundreds place?

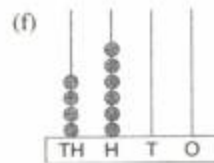
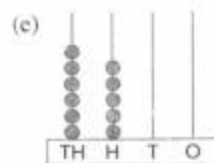
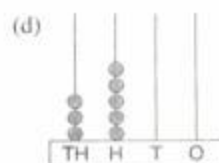
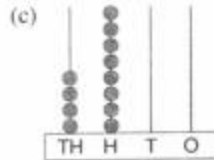
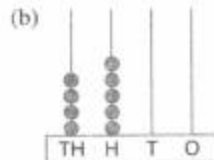
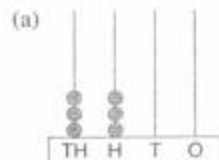
Are there any objects in the tens/ones place?

What is the numeral? If you said 3200, you are correct.

Read this as three thousand two hundred.

Exercise C

Read the numerals on the abaci. Write them.



Exercise D

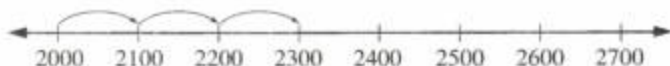
Write the names for these:

- | | |
|---------|----------|
| 1. 2300 | 6. 4500 |
| 2. 5400 | 7. 8900 |
| 3. 3600 | 8. 1700 |
| 4. 7200 | 9. 2800 |
| 5. 6100 | 10. 9600 |

Leave a space between the hundreds digit and the thousands digit.

If there are no tens or ones we must have zeros in place.

Look at the number line.



Begin at 2000 to find 300 more than 2000 the arrow is moved three spaces to the right.
What is the answer? 2300 is correct.

Now find the answer for 200 less than 2600.

At the bottom of the number line at 2600 and move 2 spaces to the left.

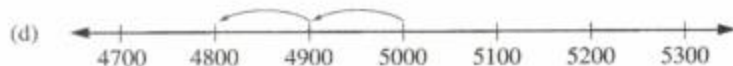
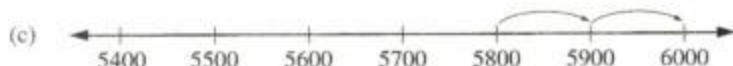
What is the answer? 2400 is correct.

Exercise E

Look at each number line. Then write the correct number sentence and the answer.

The first one is done for you.

200 more than 1200 is 1400



REVIEW

1. Match each numeral with its name.

Numerals	Names
1800	two thousand seven hundred
3500	four thousand one hundred
5600	one thousand eight hundred
7400	three thousand five hundred
2700	five thousand six hundred
4100	seven thousand four hundred

2. Show expanded notation.

a) $4600 = 4000 + 600 + 0 + 0$

b) $3000 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

c) $5900 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

d) $2000 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

e) $7200 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

f) $8100 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$

3. Complete these:

a) 100 more than 2900 is $\underline{\hspace{1cm}}$.

b) 300 more than 4500 is $\underline{\hspace{1cm}}$.

c) 500 more than 6000 is $\underline{\hspace{1cm}}$.

d) 200 less than 7000 is $\underline{\hspace{1cm}}$.

e) 400 less than 5300 is $\underline{\hspace{1cm}}$.

f) 600 less than 8200 is $\underline{\hspace{1cm}}$.

UNIT 3

ADDITION AND SUBTRACTION, NUMBER, SEQUENCES/PLACE VALUE

Look at this table

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

To find $15 - 8$
we can find $7 + 8 = 15$

Use the addition table.

Add zero to all the numerals on the top line.

What are the answers?

$0 + 0 = 0$, $0 + 1 = 1$, $0 + 2 = 2$, $0 + 3 = 3$, $0 + 4 = 4$

Is there a pattern?



Zero added to any number
is the number itself.

Subtract zero from all the numerals on the top line.

What are the answers?

$0 - 0 = 0$, $1 - 0 = 1$, $2 - 0 = 2$, $3 - 0 = 3$, $4 - 0 = 4$

Is there a pattern?



Zero subtracted from any
number is the number itself.

Now add 1 to all the numerals on the top line.

$$1 + 0 = 1, \quad 1 + 1 = 2, \quad 1 + 2 = 3, \quad 1 + 4 = 5, \quad 1 + 5 = 6$$

Add again from the top line to 1

$$0 + 1 = 1, \quad 1 + 1 = 2, \quad 2 + 1 = 3, \quad 4 + 1 = 5, \quad 5 + 1 = 6$$

What do you notice? Are the answers the same each time? Yes they are.



The order in which two numbers are added does not change the answer.

Exercise A

Add these:

1. a)
$$\begin{array}{r} 250 \\ + 135 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 192 \\ + 303 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 460 \\ + 207 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 701 \\ + 124 \\ \hline \end{array}$$

2. a)
$$\begin{array}{r} 576 \\ + 312 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 821 \\ + 156 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 643 \\ + 254 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 395 \\ + 602 \\ \hline \end{array}$$

Subtract these:

1. a)
$$\begin{array}{r} 346 \\ - 105 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 563 \\ - 240 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 478 \\ - 312 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 657 \\ - 413 \\ \hline \end{array}$$

2. a)
$$\begin{array}{r} 287 \\ - 102 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 799 \\ - 416 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 868 \\ - 346 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 964 \\ - 534 \\ \hline \end{array}$$

Look at this:

$$\begin{array}{r} 1 \\ 146 \\ + 335 \\ \hline 1 \end{array}$$

Add the ones
6 ones + 5 ones = 11 ones
11 ones = 1 ten 1 one

Exercise B

1. a)
$$\begin{array}{r} 177 \\ + 275 \\ \hline \end{array}$$
 b)
$$\begin{array}{r} 368 \\ + 246 \\ \hline \end{array}$$
 c)
$$\begin{array}{r} 549 \\ + 364 \\ \hline \end{array}$$
 d)
$$\begin{array}{r} 785 \\ + 219 \\ \hline \end{array}$$
- e)
$$\begin{array}{r} \$607 \\ + \$249 \\ \hline \end{array}$$
 f)
$$\begin{array}{r} \$836 \\ + \$492 \\ \hline \end{array}$$
 g)
$$\begin{array}{r} \$934 \\ + \$517 \\ \hline \end{array}$$
 h)
$$\begin{array}{r} \$563 \\ + \$326 \\ \hline \end{array}$$
2. a) $56 + 328 + 656$ b) $1200 + 514 + 96$
- c) $925 + 2100 + 39$ d) $475 + 3400 + 62$

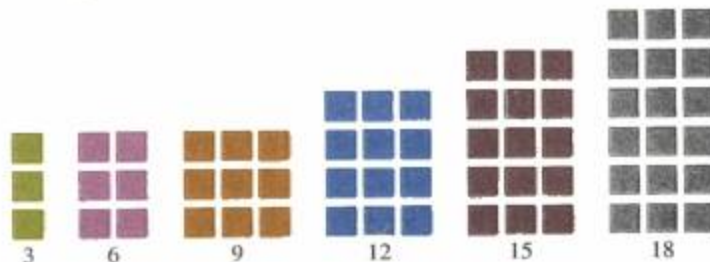
Remember to subtract like this:

$$\begin{array}{r} 3 \overset{4}{\cancel{5}} \overset{14}{\cancel{4}} \\ - 126 \\ \hline \end{array}$$

54 - 4 tens 14 ones

3. a)
$$\begin{array}{r} 470 \\ - 235 \\ \hline \end{array}$$
 b)
$$\begin{array}{r} 627 \\ - 319 \\ \hline \end{array}$$
 c)
$$\begin{array}{r} 550 \\ - 38 \\ \hline \end{array}$$
- d)
$$\begin{array}{r} 2400 \\ - 236 \\ \hline \end{array}$$
 e)
$$\begin{array}{r} 3700 \\ - 547 \\ \hline \end{array}$$
 f)
$$\begin{array}{r} 4900 \\ - 723 \\ \hline \end{array}$$
 g)
$$\begin{array}{r} 5600 \\ - 874 \\ \hline \end{array}$$
4. a) From 693 take 278 b) Subtract 865 from 1200
- c) From 923 take 547 d) Subtract 590 from 3500

Number Sequences



Count the objects in each set.

Do you notice a pattern?

The pattern shows that 3 is added to each set.

Write the sequence like this:

3, 6, 9, 12, 15, 18

Look at this:



10



8



6



4



2

The pattern shows that 2 is subtracted from each set.

Write the sequence like this:

10, 8, 6, 4, 2

To find the answers to number sequences look for a pattern. In some cases you either add or subtract.

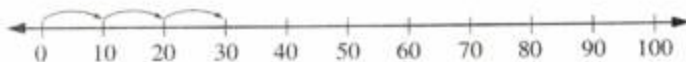
Exercise C

Complete these:

1. a) 12, 15, 18, __, __
b) 24, 28, 32, __, __
c) 36, 40, 44, __, __

2. a) 73, 77, 81, __, __
b) 30, 25, 20, __, __
c) 46, 43, 40, __, __

Look at the number line.



It shows that we can write a sequence by adding or subtracting 10.

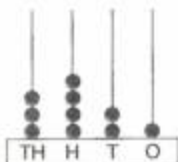
3. Complete these:

- a) 52, 62, 72, __, __, __
- b) 25, 35, 45, __, __, __
- c) 16, 26, __, __, 56, 66

4. a) 4, 14, __, __, 44, 54
b) __, __, __, 77, 87, 97
c) __, __, __, 59, 69, 79

Remember
 Look for the pattern.
 Use the numerals given as your guide.
 Add or subtract.
 Each line stands for a missing numeral.

Place Value



Look at the abacus.
 We can see objects in each place.
 It shows 3 thousands, 4 hundreds, 2 tens, 1 one
 The numeral is 3 421.
 Read this as three thousand four hundred and twenty one.

Thousands	Hundreds	Tens	Ones
4	9	6	3

Look at the place value chart.
 Which digit is in the thousands place? The hundreds place? The tens place?
 The numeral shown on the place value chart is 4 963. It reads four thousand nine hundred and sixty three.

Exercise D

- Write the names for these:

a) 3952	d) 4725
b) 5836	e) 6514
c) 7263	f) 9389
- Write the expanded form for these.
 The first one is done for you.

a) 1579 = 1 thousand	5 hundreds	7 tens	9 ones
b) 5617 = — thousands	—hundreds	—tens	—ones
c) 4782 = — thousands	—hundreds	—tens	—ones

Write the numerals for these

- a) Five thousand two hundred and eighty one
- b) One thousand and ninety six
- c) Two thousand eight hundred and thirty seven
- d) Six thousand and fifty four
- e) Eight thousand three hundred and ninety

REVIEW

- 1. A baker sold 125 loaves on Monday, 263 loaves on Tuesday, 319 loaves on Wednesday. How many loaves did he sell in all?
- 2. Elson bought a sandwich for \$80, a milkshake for \$125 and an ice-cream for \$60. How much money did he spend?
- 3. There were 568 tickets for a concert, 379 tickets were sold. How many tickets were not sold?
- 4. John has \$617. A tennis ball costs \$750. How much more money does he need to buy the tennis ball?
- 5. Copy and complete the B cards so that they name the same numbers as the A cards.

CARDS A

3568

2013

79207

46394

CARDS B

3 thousands hundreds 6 tens ones

thousands 0 hundreds 1 tens 3 ones

79 thousands 2 hundreds tens ones

46 thousands hundreds 9 tens ones

UNIT 4

SOLID SHAPES; CALENDAR TIME

Naming Solid Shapes

Look at these:



cube



cuboid



cone



cylinder



sphere

We see these shapes every day around us.

The sphere is seen in the shape of balls, the globe, marbles, etc.

Exercise A

1. Now copy each picture and draw three objects with the shape of the solid in the picture.



sphere



ball



marble



globe

2. The pictures below, show objects made up of solid shapes.



a) Name each picture.

b) Name the solid shape in each picture. For example:



cone






cylinder

3. Copy and complete each shape.



- b) Name each shape you have completed.

Remember this:

SHAPE	NAME
	cube
	cuboid
	cone
	cylinder
	sphere

4. Match each object with the word that names its shape



cube cuboid cone cylinder sphere

Making Models from Nets

This is a picture of a cube.



If I take a box which has this shape and carefully open it out at the edges, I will get something like this:



Each side looks like a square.

When we open solid shapes like I did, the shape we get is called a net.

So, we can open a cube-shaped box.

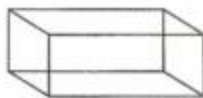
We have a net for a cube.

Exercise B

1. Now carefully trace this net.
Cut it out.
Fold along the dotted lines to make a cube.
Paste or tape the edges in place.



2. This is a picture of a cuboid.



Here is a net for a cuboid

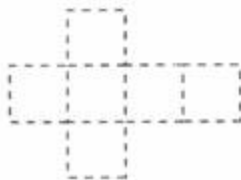


Trace and cut out the net for the cuboid.

Fold along the dotted lines to make a cuboid.

Paste or tape the edges to hold in place.

3. Here are two other nets.
Trace, cut out fold and paste.
Name the shapes you make from each net.



4. Name the shape for each net.



If in doubt, trace, cut out, fold and paste to find out.

Calendar Time

Days and weeks in a month.

Study this:

30 days in September
April, June and November.
All the rest have thirty-one.
Except February alone.
Which has twenty-eight days
And twenty-nine in each leap year.

Exercise C

- Now name the months which have thirty-one days.
How many months have 30 days?
How many months have 31 days?
- Look at this calendar:

MARCH						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

How many days are there in this month?

Name the days of the first week in this month.

Name the days of the last week in this month.

How many weeks are there in this month?

How many days are there in one week?

Are there days other than those in the first three weeks?

If so, how many?

Why does the first day in March begin on a Tuesday?

3. Group the days of each month on your calendar to show weeks.
Count the weeks and extra days in each month.
Is there the same number of weeks in each month?

Remember

7 days make 1 week

4 weeks make 1 month

4. a) Copy and complete.
Write the names of the months of the year in order. e.g

Months	No. of Days	No. of Weeks
January	31	

- b) Which month has the least number of days?
What important event (to Guyanese) occurs in the shortest month of the year?
What else is significant about that month?

Days, Weeks and Months in a Year

Exercise D

1. Look at the calendar in your classroom.
Read the names of the months in order.
How many months are there in a year?
Tell the number of days in each month.
2. Group all the days to show weeks.
Be sure to put each day of the year into a week.
How many weeks are there in a year?
How many days are there in the year?
Is this a leap year?
How can you tell?
If this was a leap year how many days would there be?
Which month has the additional day?

Learn this:

7 days make 1 week

4 weeks make 1 month

52 weeks make 1 year

12 months make 1 year

365 days make 1 year

366 days make 1 leap year

UNIT 5 NUMBERS

Arranging, Ordering and Comparing

9, 0, 5, 3, 1, 6, 2, 8, 4, 7

These are the digits we use in Mathematics.

We can order digits.

Read this: a) 9, 5, 3, 2

 b) 2, 3, 5, 9

In what order are the digits set down in each?

We can write numbers beginning
with the largest or the smallest digit.

Exercise A

1. a) Write these numerals. Begin with the largest.

2, 4, 6 1, 7, 5 4, 6, 8 5, 0, 9, 3

 b) Write these numerals. Begin with the smallest.

5, 3, 7 6, 2, 4 7, 1, 8, 3 9, 6, 5, 3

Look at these
9, 0, 5, 3, 1, 6, 2, 8, 4, 7
They are one-digit numerals.

2. Here are some other numerals.

 a) 48 b) 604 c) 2153

How many digits are there in each?

There are 2-digit, 3-digit, and 4-digit numerals.

We use the digits, 0 to 9, to make
2, 3 –and 4– digit numerals.

3. Make 2-digit numerals with these digits.

The first one is done for you.

a) 9, 2 Numerals are 29 and 92

b) 5, 3 c) 8, 1 d) 9, 0 e) 7, 4

4. Make as many 3-digit numerals as you can with these digits.
 a) 4, 1, 5 b) 3, 0, 8 c) 2, 6, 7 d) 9, 2, 5
5. Make as many 4-digit numerals as you can.
 a) 4, 5, 1, 6 b) 3, 5, 6, 2 c) 9, 6, 2, 4

Arranging digits to form numerals.

Remember

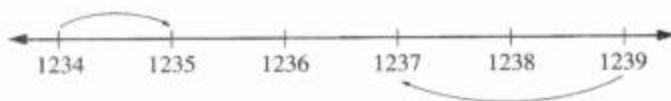
To arrange digits to form the largest possible numeral, place the largest digit on your left.

To form the smallest numeral, place the smallest digit on your left. Arrange the other digits in the same order.

Example: Digits — 4, 6, 3
 Largest: 643
 Smallest: 346

Exercise B

1. Arrange each set of digits to form the smallest possible numeral. The first one is done for you.
 a) 5, 4 Numeral 45 b) 7, 5 c) 7, 3, 2 d) 4, 3, 7, 5
 e) 9, 1 f) 2, 9, 8 g) 7, 3, 2
2. Arrange each to form the largest possible numeral.
 a) 4, 7 b) 1, 8 c) 4, 0, 7 d) 2, 4, 7
 e) 1, 1, 2, 4 f) 3, 0, 5, 6



Read the numerals on the number line.
 Follow the direction of the top arrow.
 Now read them again.
 Follow the direction of the bottom arrow.

Remember

We can order numerals from the largest to the smallest.

We can also order numerals from the smallest to the largest.

Exercise C

1. Put the following in the correct order.
Begin with the smallest.
 - a) 46, 97, 23, 58, 70
 - b) 705, 416, 151, 280, 329
 - c) 3087, 1111, 4275, 1139, 7000
2. Put the following in the correct order.
Begin with the largest.
 - a) 42, 56, 82, 60, 94
 - b) 434, 275, 907, 311
 - c) 2935, 2602, 3010, 1028
3. Complete the sequences.
 - a) 59, ____, 62, 63
 - b) 389, ____, 391, 392, ____, 394
 - c) 1399, 1398, ____, 1396, —
 - d) 2400, 2401, ____, ____, 2404

Look at this number line.



Which is the largest numeral?

Which is the smallest numeral?

Is 1 326 larger or smaller than 1 328?

We use the symbols $>$, $<$ and $=$ to compare numerals.

$>$ is greater than
 $<$ is less than
 $=$ is equal to

Exercise D

1. Use $>$, $<$ or $=$ to compare these:
 - a) 35 53
 - b) 63 630
 - c) 642 162
 - d) 1007 107
 - e) 1851 1851
 - f) 2001 20 001

Addition

Find the sum of:

$32 + 14$

$$\begin{array}{r} 32 \\ + 14 \\ \hline 46 \end{array}$$

First add the ones
and then the tens

Other Examples

$$\begin{array}{r} 17 \\ + 22 \\ \hline 39 \end{array}$$

$$\begin{array}{r} 120 \\ + 352 \\ \hline 472 \end{array}$$

$$\begin{array}{r} 1402 \\ + 2135 \\ \hline 3537 \end{array}$$

$$\begin{array}{r} 2305 \\ 127 \\ 8 \\ + 32 \\ \hline 2472 \end{array}$$

When we add numbers together
the answer is the sum.

Exercise E

Copy and complete:

1. a) $\begin{array}{r} 23 \\ + 12 \\ \hline \end{array}$ b) $\begin{array}{r} 13 \\ + 24 \\ \hline \end{array}$ c) $\begin{array}{r} 57 \\ + 10 \\ \hline \end{array}$ d) $\begin{array}{r} 75 \\ + 40 \\ \hline \end{array}$ e) $\begin{array}{r} 96 \\ + 32 \\ \hline \end{array}$

2. a) $\begin{array}{r} 47 \\ + 2 \\ \hline \end{array}$ b) $\begin{array}{r} 46 \\ + 20 \\ \hline \end{array}$ c) $\begin{array}{r} 63 \\ + 21 \\ \hline \end{array}$ d) $\begin{array}{r} 635 \\ + 4122 \\ \hline \end{array}$

3. Find the the sum of:

a) $\begin{array}{r} 37 \\ 21 \\ + 13 \\ \hline \end{array}$

b) $\begin{array}{r} 53 \\ 28 \\ + 5 \\ \hline \end{array}$

c) $\begin{array}{r} 410 \\ 15 \\ + 238 \\ \hline \end{array}$

d) $\begin{array}{r} 145 \\ 217 \\ + 308 \\ \hline \end{array}$

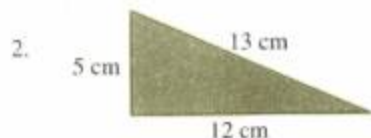
4.	a)	\$23	b)	\$185	c)	\$426	d)	\$6	e)	\$1539
		\$45		\$297		\$387		\$20		\$300
		\$72		\$314		\$465		\$96		\$291
		<u>+ \$10</u>		<u>+ \$25</u>		<u>+ \$90</u>		<u>+ \$10</u>		<u>+ \$43</u>
		_____		_____		_____		_____		_____

5.	a)	g	b)	kg	c)	kg	g	d)	kg	g
		97		38		4	60		3	471
		184		47		7	35		5	140
		<u>+ 150</u>		<u>+ 35</u>		<u>+ 5</u>	<u>140</u>		<u>+ 2</u>	<u>126</u>
		_____		_____		_____	_____		_____	_____

Exercise F

Solve these problems:

1. A farmer has to fence three fields measuring 180 metres, 300 metres and 265 metres. How many metres in all has he to fence?



Total the sides of the triangle.
How many cm in all?

Four pieces of crepe paper with lengths 45 cm, 106 cm, 80 cm and 9 cm are joined to decorate a room. What is the total length of crepe paper used?

4. Find the total amount collected for newspaper sale on the following days.

Monday	–	\$2500	Tuesday	–	\$4000
Wednesday	–	\$1200	Thursday	–	\$3000

5. Buy these items at your school canteen.

Orange juice	\$120
Cheese sandwich	\$80
Cassava balls	\$60

How much will you pay?

6. After a collection was taken the baskets had

\$520, \$390, \$850 and \$1700.

How much money was collected altogether?

7. Bob has a mass of 45 kg, Tony 36 kg and Lal 38 kg.
Find the total number of kg they have altogether.
8. Find the total mass of these:



200 g



454 g



280 g

Subtraction

$$\begin{array}{r} 36 \\ - 24 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 432 \\ - 102 \\ \hline 330 \end{array}$$

$$\begin{array}{r} 3\ 985 \\ - 2674 \\ \hline 1311 \end{array}$$

Exercise F

1. Find the difference:

a)
$$\begin{array}{r} 59 \\ - 26 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 92 \\ - 10 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 872 \\ - 501 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 400 \\ - 200 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 743 \\ - 333 \\ \hline \end{array}$$

2. a)
$$\begin{array}{r} 4005 \\ - 1002 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 9823 \\ - 1413 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 6054 \\ - 1032 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 3425 \\ - 2115 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 8420 \\ - 1310 \\ \hline \end{array}$$

$\begin{array}{r} 4\ 12 \\ 52 \\ - 16 \\ \hline 26 \end{array}$	$\begin{array}{r} 4\ 10\ 10 \\ 600 \\ - 143 \\ \hline 457 \end{array}$	$\begin{array}{r} 3\ 13 \\ 432 \\ - 160 \\ \hline 272 \end{array}$	$\begin{array}{r} 8\ 11\ 13 \\ 7928 \\ - 1465 \\ \hline 6458 \end{array}$
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Remember
The answer in a subtraction
is the difference.

3. Subtract these:

Remember to regroup.

$$\begin{array}{r} \text{a)} \quad 56 \\ - 27 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 76 \\ - 39 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 50 \\ - 32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 40 \\ - 16 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 90 \\ - 34 \\ \hline \end{array}$$

$$\begin{array}{r} \text{4. a)} \quad 666 \\ - 437 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 436 \\ - 227 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 385 \\ - 278 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 680 \\ - 237 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 450 \\ - 228 \\ \hline \end{array}$$

5. Work these:

a) $1004 - 2$

b) $856 - 713$

c) How much less than 2036 is 1749?

d) From 493 subtract 85.

e) By how much is 934 greater than 462?

$$\begin{array}{r} \text{6. a)} \quad \$ \\ \quad 325 \\ - 102 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad \$ \\ \quad 1502 \\ - 460 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad \text{m} \quad \text{cm} \\ \quad 5 \quad 50 \\ - 1 \quad 20 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad \text{m} \quad \text{cm} \\ \quad 10 \quad 45 \\ - 4 \quad 21 \\ \hline \end{array}$$

Exercise G

Now solve these problems:

1. A dress costs \$2500. Sally buys a dress. She gives the seller a five hundred dollar bill. How much change does she get?
2. If an art book costs \$595 and a pack of crayons costs \$278, how much more than the crayons does the art book cost?
3. A roll of barbed wire has 600 metres. Mr. Singh used 24 metres to fence his garden plot. How many metres were left on the roll?
4. The mass of a bag of lice is 120 kg. The mass of a bag of flour is 210 kg. What is the difference in their masses?
5. A box of cereal has 596 g. After four days 237 g were used. How many grams of cereal remain in the box?
6. 540 ml of syrup are in a large bottle. 215 ml were poured into a smaller bottle. How many millilitres remain in the large bottle?

REVIEW

- Order these numerals. Begin with the largest.
 - 32, 56, 4, 90
 - 1642, 408, 8000, 47
- Compare using $>$, $<$ or $=$.
 - 28 55
 - 243 243
 - 2035 1352
 - 519 195
- Copy the set of three digit numerals.
 - 412, 28, 1004, 5
 - 1804, 271, 3146, 500
 - 329, 842, 900, 175
- Try these for fun.

What's my number?

 - My digits are 5 and 2
I am close to 60.
What am I?
 - One of my digits is 0
I am between 70 and 90.
What am I?
- Write the missing numerals.
 - 46 47 49 51
 - 3001 3002 3005
 - 997 995 993
- In a basket there are 96 fruits. 35 are oranges, 27 are mangoes and the others are guavas.
How many guavas are in the basket?
- From a piece of string of 5 m 75 cm long, 2 m 6 5cm is cut off. What length remains?

LET US LOOK BACK

1.	a)	$\begin{array}{r} \$590 \\ + \$110 \\ \hline \end{array}$	b)	$\begin{array}{r} 200 + 10 + 4 \\ + 300 + 60 + 1 \\ \hline \end{array}$	c)	$\begin{array}{r} \text{m} \quad \text{cm} \\ 5 \quad 28 \\ + 1 \quad 12 \\ \hline \end{array}$
----	----	---	----	---	----	---

2. Find the pattern.
Copy and complete:

a) 640, 650, ____, 670, ____

b) 535, 520, 505, ____, ____

c) 4106, ____, ____, 4109, 4110

3. Place the correct symbol $>$, $<$ or $=$ to complete these.

a) $74 \square 79$

b) $3520 \square 4520$

4. If Andy's birthday falls on the last day of June, what date is his birthday?

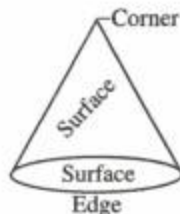
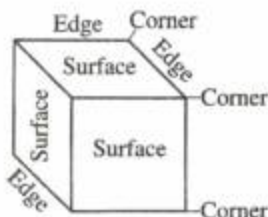
5. If October 14 is a Monday, what is the date of the next Monday?

6. If March 21 is a Saturday, what day of the week is March 28?

UNIT 6 SOLID SHAPES; LENGTH

Surfaces, Edges and Vertices

Look at these:



Exercise A

Now do these:

1. Take your crayon box or any other small box that is available.
 - a) Pass your hand over all the **surfaces**.
How many **surfaces** are there?
How many of the surfaces are curved?
How many of the surfaces are flat?
Name the shape of your box.
 - b) Pass your finger over all the **edges**.
How many edges are there?
How many of the edges are curved?
How many of the edges are straight?
 - c) Use a crayon to mark all the **corners** on this box.
How many corners are there?

Remember






A **corner** is the point where two or more edges meet.
Another name for **corner** is **vertex**.
We say **corners** or **vertices**.

2. Now use objects with the shape of a cube, cone, cylinder and sphere.
Count and describe the surfaces, edges and vertices on each.

Remember

Edges are straight or curved.
Surfaces are flat or curved.

Record your findings on a table like this:

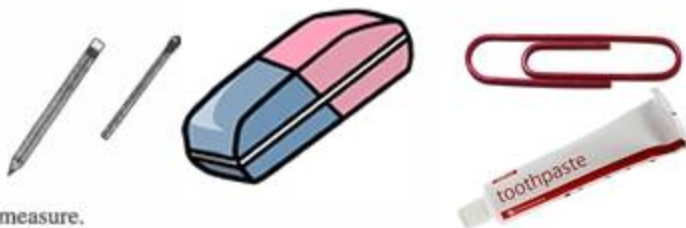
Shape	Number of surfaces	Number of flat surfaces	Number of curved surfaces	Number of edges	Number of straight edges	Number of curved edges	Number of vertices
 cuboid	6	6	0	12	12	0	8
 cube							
 cone							
 cylinder							
 sphere							

Flat surfaces slide.
Curved surfaces roll.

LENGTH

Non-Standard Units

Look at these:




Each is a unit of measure.

Exercise B

1. a) Choose one of the above units to measure each of the following:

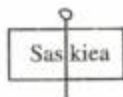


- b) Without using the unit to measure, tell:
How many of your chosen unit will be needed to measure the object.
- c) Now measure to find out.
Record your estimates and the actual measures on a table like this.

Object measured	Unit	Estimate	Measure
	eraser	5	7

2. Work with the children in your class or group.
Each child should have a piece of string that measures his or her height.
Do these:
- Estimate how many times your string will wrap around your head, wrist, hips, neck and waist.
 - Wrap it to find out.
 - Compare your findings with those of your friends.
Who has the longest piece of string? Why?
Who has the shortest piece of string? Why?
 - How many pieces of string are longer than yours? Shorter than yours? The same length as yours?

3. Put a card with your name on your piece of string like this:




Have the other children do the same.

Now arrange the pieces of string in order from the shortest to the longest.

Take your friends and stand in a line according to the position of your piece of string.

Check the result with the order of the pieces of string.

Is it the same or different?

4. Use a match stick as a unit for measuring length. 
- Estimate then measure the length of each line segment below with this unit.

a) 

b) 

c) 

d) 

e) 

f) 

Copy the table below and record your measurement.

Line	Unit	Number of Units
a		
b		
c		
d		
e		
f		

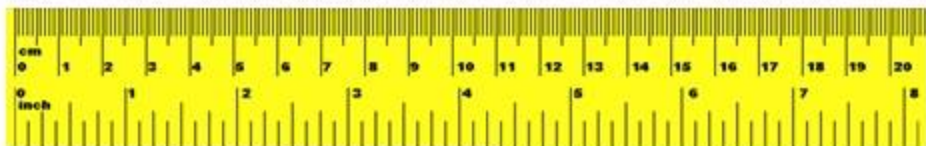
Use the table to compare the lengths of each line segment.

5. Without using a ruler, draw line segments which you think measure:
5 cm, 20 cm, 1 cm, 10 cm, 15 cm, 9 cm.

Use a ruler to verify their measures.
Compare your drawings with the actual lengths.

Centimetre or Metre

Look at this ruler



What unit of measurement is used on this ruler?

Exercise C

- Estimate the length of your exercise book in centimetres.
Use your rule.
Measure to find out how close was your estimate?
 - Estimate the lengths of your:
pencil, Mathematics book, eraser, thumb, foot, arm, in centimetres.
Measure to find out the difference.
Copy and complete the table below

What I measured	Estimate in cm	Actual measurement in cm	Difference in cm

2. Look at these:



- a) Estimate the lengths of these in metres.
- i) The door.
 - ii) The top of your desk.
 - iii) The floor of your classroom.
 - iv) Your height and the height of your friends.
- b) Use a metre stick or a tape measure to verify the measurement.
Record on a table.
- c) Compare the estimates with the actual measurement.
How many of your estimates were accurate?
How many were too high?
How many were too low?
3. a) Without measuring, give the length of each of the following in metres:
Your school yard, the classroom wall,
The school building, your teacher's height.
- b) Use your metre stick to measure and verify.
Record and compare the lengths of each of the above.
4. Make a graph to show the heights of the children in your group.

UNIT 7

ODD AND EVEN NUMBERS; FRACTIONS; ORDINALS

Look at these:



Odd numbers are one step back; even numbers are one step forward.

Remember

Odd numbers end with 1, 3, 5, 7 or 9

Even numbers end with 2, 4, 6, 8, or 0

Play this game with a friend

Group these numbers as **ODD** or **EVEN**

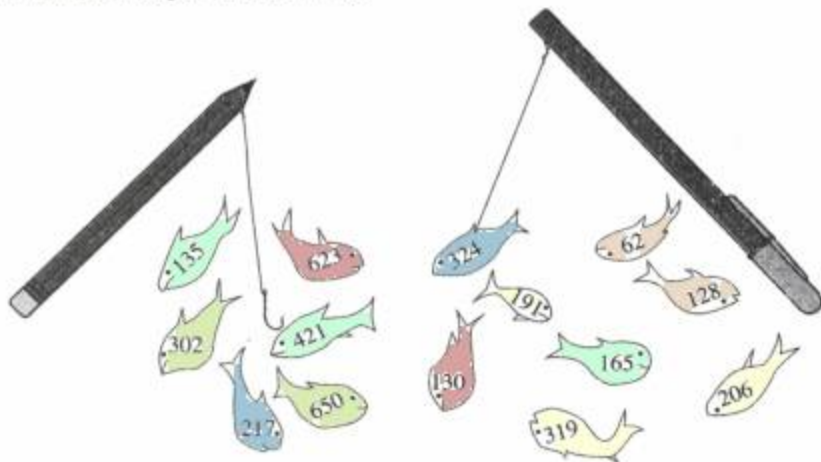
Place each fish caught in the group.

Take 1 point for each fish you place correctly

The player with the most points is the winner.

ODD

EVEN

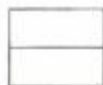


Fractions

$$\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}$$

Exercise A

1. a) Shade to show $\frac{1}{2}$



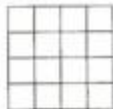
b) Shade to show $\frac{1}{4}$



c) Shade to show $\frac{1}{8}$



d) Shade to show $\frac{1}{16}$



Fraction of a set

We can find a fraction of a set.

To find one half of a set, we divide the set into two equal parts like this:



How many beads do we have in each part?

Since each part has the same number of beads, we say the parts are equal.

Each part is one half of the set of beads.



One half of 12 is 6

$$\frac{1}{2} \text{ of } 12 = 6$$

To find one quarter of a set, we divide the set into four equal parts.

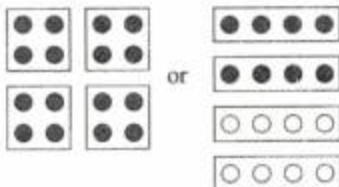
How many beads do we have in each part?

What is each part called?

What is one quarter of 16?

One quarter of 16 is 4.

$$\frac{1}{4} \text{ of } 16 = 4$$



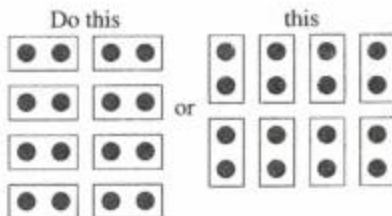
To show $\frac{1}{8}$ of this set of beads in

different ways, look at the diagram opposite.

How many beads do you have in each part?

What is one eighth of 16?

$$\frac{1}{8} \text{ of } 16 = 2$$



Exercise B

1. Try these:
Use diagrams to help you.

a) $\frac{1}{2}$ of 14

c) $\frac{1}{4}$ of 8

e) $\frac{1}{2}$ of 12

g) $\frac{1}{4}$ of 16

b) $\frac{1}{8}$ of 16

d) $\frac{1}{2}$ of 20

f) $\frac{1}{8}$ of 24

h) $\frac{1}{4}$ of 12

Remember

The **denominator** of a fraction tells into how many equal parts the set must be divided.

The **numerator** tells us how many equal parts are taken out of the whole.

$\frac{1}{4}$ of 32 means 32 must be divided into 4 equal parts.

i.e. $\frac{32}{4} = 8$ one part = 8

i.e. $\frac{1}{4}$ of 32 = 8

2. Try these without diagrams.

- a) $\frac{1}{4}$ of 64 b) $\frac{1}{2}$ of 64 c) $\frac{1}{2}$ of 26 d) $\frac{1}{4}$ of 40 e) $\frac{1}{8}$ of 24
f) $\frac{1}{8}$ of 64 g) $\frac{1}{4}$ of 20 h) $\frac{1}{8}$ of 40 i) $\frac{1}{2}$ of 24 j) $\frac{1}{2}$ of 50

Ordinals Beyond 31st

Exercise C

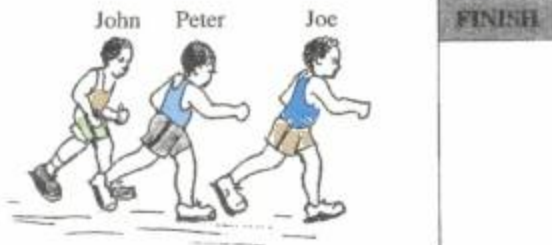
Solve these and state the order.

1. 38th 37th 36th 35th 34th 33rd 32nd 31st

2. Sally is now making her 40th jump. Copy and write in the other for her.



3.



100 boys ran a road race.

The picture shows the order in which three of them came in.

If Peter was the 61st boy then Joe was the ____ boy and John was the ____ boy.

UNIT 8 FACTORS

Factors of 1-digit Numerals

Look at some other patterns

We say 1 row of 6



Look at some other patterns.

Try and describe them.



Read them like this:

2 rows of 3

3 rows of 2

6 rows of 1

What patterns can you find?

Here are the multiplication sentences for the patterns.

Read them:

$$2 \times 3 = 6$$

$$3 \times 2 = 6$$

$$6 \times 1 = 6$$

Here are the numerals we used — 1, 2, 3, and 6.

These are called the **factors of 6**.

Write them like this, the factors of 6 are 1, 2, 3, and 6.

Exercise A

1. Make drawings to show the factors of 4, 3, 8, 9, 2
Write all the factors of each.

We write the factors of a number
in order from smallest to largest.

2. Write the factors of 5, 4, 6, 7.

Factors of 2-digit Numerals

Look at these patterns.

Read the multiplication sentence below each.

• • • • • • • • • •

1 row of 10

$$1 \times 10 = 10$$

•
•
•
•
•
•
•
•
•
•

10 rows of 1

$$10 \times 1 = 10$$

• • • • •

2 rows of 5

$$2 \times 5 = 10$$

• •
• •
• •
• •
• •

5 rows of 2

$$5 \times 2 = 10$$

We can also write the factors of 2-digit numerals in order starting from the smallest.

The factors of 10 are 1, 2, 5, and 10

Remember
When writing factors,
1 and the numeral itself are always
factors of the numeral.

Exercise B

A multiplication chart helps us to find factors of numerals.

1. Look at the shaded squares in the chart on the next page.
Name the numeral in each of the shaded squares.
Look at the first numeral in each row on the chart.
Read the numerals at the beginning each row with the shaded square.
Those are the factors of 10
2. Write the factors of:
16, 12, 18, 20

Multiplication Chart

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

- Use the chart to find the factors of: 15, 11, 21, 14, 18.
- Write the factors of: 22, 24, 26, 28
- Build a table like this for factors
You may find it necessary to add to this table as a study activity.

Numerals	Factors	Number of Factors
1	1	1
2	1, 2	2
3	1, 3	2
4	1, 2, 4	3
5	1, 5	2
6	1, 2, 3, 6	4

Is there a pattern?

What have you found out?

Multiplication

Multiplying by 2, 3, 5

Look at the set of oranges.

They show number facts for multiplication.



4 sets of 5 = 20

$4 \times 5 = 20$

Exercise C

1. Copy and complete:

a) $3 + 3$

g) 5×5

b) $5 + 5 + 5 + 5$

h) 4×2

c) $4 + 4 + 4$

i) 5×3

d) $2 + 2 + 2 + 2 + 2 + 2 + 2$

j) 2×6

e) 3×9

k) 3×8

f) 2×7

l) 5×6

2. Now do these:

a)
$$\begin{array}{r} 27 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 94 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 85 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 33 \\ \times 4 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 232 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 126 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 521 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 734 \\ \times 3 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 4172 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 1179 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 1625 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 1213 \\ \times 5 \\ \hline \end{array}$$

Multiplying by 0

$$3 \times 0 = 0; 0 \times 3 = 0$$

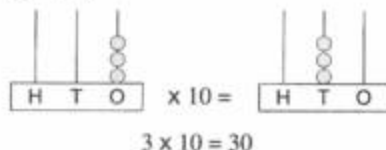
When any number is multiplied by zero, the answer is zero.

Multiplying by 1

$$1 \times 5; 5 \times 1 = 5$$

When a number is multiplied by one, The answer is the number itself.

Multiplying by 10



The counters in the ones place has been increased ten times.

This is shown in the product.

The ones have been shifted one place to the left and a zero is placed in the ones.

Remember

When multiplying by 10, shift the number in the ones place, one place to the left.

$$\text{i.e. } 3 \times 10 = 10 + 10 + 10 = 30$$

Exercise D

1. Multiply these:

Write the answers only.

a) 7×0

$$0 \times 4$$

$$28 \times 0$$

$$35 \times 0$$

$$0 \times 156$$

$$2 \times 0$$

b) 4×1

$$39 \times 1$$

$$1 \times 25$$

$$386 \times 1$$

$$1 \times 70$$

$$1 \times 42$$

c) 3×10

$$19 \times 10$$

$$10 \times 213$$

$$110 \times 5$$

$$76 \times 10$$

$$10 \times 16$$

2. Multiply these numbers by 0, 1 and 10:

46, 5, 112, 84, 52, 4

The first is done for you.

$$46 \times 0 = 0; 46 \times 1 = 46; 46 \times 10 = 460$$

3. Find the product of:

- a) 61 and 10
- b) 32 and 5
- c) 36 and 1
- d) 43 and 0

4. What is:

- a) 10 times 51?
- b) 5 times 206?
- c) 1 time 74?

The order in which the numerals are multiplied does not change the product.
For example: $2 \times 3 = 6$; $3 \times 2 = 6$.

5. Complete these:

$$4 \times 3 = \square \times 4$$

$$5 \times \square = 1 \times 5$$

$$\square \times 5 = 5 \times 3$$

$$\square \times 8 = 8 \times 4$$

$$10 \times 0 = \square \times 10$$

$$9 \times 4 = 4 \times \square$$

$$\square \times 6 = 6 \times 10$$

$$32 \times \square = 0 \times 32$$

$$\square \times 9 = 9 \times 2$$

$$61 \times 1 = 1 \times \square$$

$$3 \times 8 = \square \times 3$$

$$5 \times 7 = \square \times 5$$

REVIEW

1. Work these:

a) 10×3

9×10

4×1

b) 10×8

10×41

32×1

c) 7×10

15×0

65×1

Show the answers to these on the tally chart.

56 x 10
43 x 10
6 x 10

H	T	O

3. Write Yes or No.

- a) 2 is a factor of 8
8 is a factor of 40

- b) 4 is a factor of 20
3 is a factor of 16

4. Write the factors of:

- a) 24, 35, 22

- b) 30, 32, 34

5. Complete these:

a) $4 \times 3 = \square \times 4$

$\square \times 5 = 5 \times 2$

b) $10 \times 3 = 3 \times \square$

$\square \times 5 = 5 \times 1$

6. a)
$$\begin{array}{r} 204 \\ \times 3 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 611 \\ \times 2 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 253 \\ \times 4 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 120 \\ \times 5 \\ \hline \end{array}$$

UNIT 9

MEASUREMENT

Mass

Look at these objects.



Now, collect some objects and place your set on the desk.

Take them, two at a time, in your hands and say which is heavier; which is lighter. Which object has a greater mass?

Mass is the amount of matter an object has.

Here is a box of chalk.

Use it as a unit of measure.

Find the mass of:



- a) three mathematics books together.
- b) A book bag with books in it.
- c) A bag of small stones.
- d) All the things that are less than the box of chalk on your desk now.

Record the mass of each as a number of boxes of chalk.

For example, 3 mathematics books have a mass of 1 box of chalk.

Compare their masses.

Which has the greatest mass?

Exercise A

Here are some objects.

Estimate then measure on a balance to find the mass of each.

a)



b)



c)



d)



Compare their masses.

Use the greater than, less than or is equal to symbols.

Centimetres

Take a piece of string about the length of a stick of chalk.
Collect some objects like the ones below.



Estimate the length of each object in lengths of your string.

Say a) Which is longer?

b) Which is shorter?

Use the piece of string to verify each length.

How close were your estimates?

Exercise B

How many pieces of string will have the same length as:

a) a ruler b) the length of your desk

Measure to find out. Record your findings.

Here is a ruler. It is marked in cm.



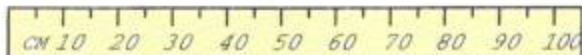
The pencil is 6 cm long.

Now use your ruler to measure some other objects.

For example, eraser, pen, crayon.

Record your findings in cm. For example, my pen is 15 cm long.

Metres



This is a metre stick.

It is 100 cm long.

Let your teacher help you to make one.

Look at some objects around you. For example:



Which of the objects are: more than a metre; less than a metre; same as a metre?

Use your metre stick to measure each.

Record your findings on a table like this.

Objects	More than a metre	Less than a metre	The same as a metre
Desk			

Exercise C

Now make a list of some other objects.

Name some objects we can measure with a metre stick. For example, the length of the classroom, the length of the garden fence.

Use your metre stick to measure the lengths of some of these objects.

Record your answers in metres.

Capacity

Exercise D

Here are groups of containers:



Fill the smaller container with water. How many of these will fill the larger container? Measure to find out. Record your findings.

Look at these groups of containers.



Which holds more or less, the same amount?

Record your findings using $>$, $<$ or $=$.

REVIEW

1. Use $<$, $>$ or $=$ to compare the mass of these objects.

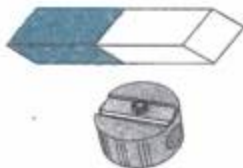
a)



b)



c)



2. Use the cm ruler or metre stick to measure



a) your garden

c) your classroom

b) your bed

d) your door

Use $>$, $<$ or $=$ to compare your measurement.

UNIT 10 TIME

Hour, Half Hour

Look at this clock.

The short hand tells the hour.

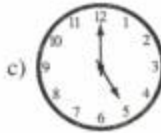
The long hand tells the number of minutes.

What time does the clock show?



Exercise A

1. Write the time shown on each clock face.



2. Draw clock faces and show these times.

02:00 h

09:00 h

11:00 h

17:00 h

12:00 h

13:00 h

Here is another clock face.

Read the time shown on this clock face.

Look at the hands.

To which numeral is the:

a) long hand pointing?

b) short hand pointing?



The long hand has moved half way around the clock face.

It points to 6

It is half past the hour

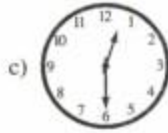
The clock shows half past nine.

We write 9:30 h

Try showing other half past times and read them.

Exercise B

1. Write the times shown on the clocks.



2. Draw clock faces to show:

a) 05:30 h

b) 10:30 h

c) 09:30 h

d) 15:30 h

24 – Hour Time

Look at this clock face.

It is a 24-hour clock face.

We can read the time shown on this clock face in two ways.

We write it like this:

24:00 h (twenty four hours)

00:00 h



Exercise C

1. Write the times shown in two ways.

a)



_____ o'clock

_____ h

b)



_____ o'clock

_____ h

c)



_____ o'clock

_____ h

2. Write these times.

The first is done for you.

a)



09:30 h

b)



c)

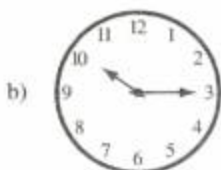


The Quarter Hour

Look at this clock face.



Quarter to _____
15 minutes to _____



Quarter past _____
15 minutes past _____

Now look at clocks A and B below.



The clock is showing quarter to 8



The clock is showing quarter past 8

Look at the hands on each clock.

When the long hand is at 9, it is 15 minutes to the next hour or one quarter of an hour to the next hour.
We write 08:45 h

When the long hand is at 3, it is 15 minutes past the hour.
We write 08:15 h

Exercise D

1. Write the time shown on each clock face.



2. Draw 24 – hour clocks to show:
04:15 h 03:45 h

13:45 h

21:15 h

5-Minute Intervals

Look at this clock.



There is an equal space between each digit.
From one digit to the next is 5 minutes

Exercise E

Answer these questions.

1. a) How many 5 minutes are there between the digits:

12 to 3?

9 to 10?

7 to 12?

5 to 7?

- b) How many minutes are there between each of the above digits?

Now look at these:



Read the time shown on each.

REVIEW

1. Use your 12 and 24-hour clock faces to show:

a) $\frac{1}{2}$ past 6

b) $\frac{1}{2}$ past 12

c) 25 minutes past 7

d) 20 minutes to 9

e) $\frac{1}{4}$ to 1

f) $\frac{1}{4}$ past 2

g) 15:30 h

h) 08:45 h

2. Write the times shown on these clocks:



3. Solve these problems

- a) If it is now 08:00 h, what time will it be in $\frac{1}{2}$ an hour's time?
- b) Dan takes 15 minutes to get to school, if he leaves home at 08:40 h, what time will he arrive at school?

LET US LOOK BACK

1. Which set of factors shows factors of 8?

- a) 1, 2, 3, 4
b) 1, 2, 4, 8
c) 1, 3, 5, 6

2. Measure each line segment. Write its length in cm.

a) F ————— G

b) P ————— Q

c) L ————— M

d) O ————— P

3. Michelle has 20 nuts. She gave $\frac{1}{4}$ of them to her cousin.

How many nuts did she give away?

How many nuts does she have left?

4. Complete these:
- a) $\frac{1}{8}$ of 16 b) $\frac{1}{4}$ of 24 c) $\frac{1}{2}$ of 10 d) $\frac{1}{3}$ of 9
5. a) Draw a clock face to show half past 7.
 b) It is now 16:25 h. What time was it one hour ago?
 c) Lunch break starts at 12:00 h and ends at 12:55 h. How long is the lunch break?
6. Write the next two even numbers in each row.
- a) 148, 150, 152, ____, ____
 b) 370, 372, 374, ____, ____
 c) 102, 104, 106, ____, ____
7. Write the missing ordinals.
- a) 31st, 32nd, ____, ____, 35th
 b) 99th, ____, 97th, 96th, ____
8. Write answers only.
- $6 \times 10 = \square$ $32 \times 10 = \square$
 $25 \times 10 = \square$ $14 \times 1 = \square$
 $6 \times 1 = \square$ $50 \times 0 = \square$
9. Complete these:
 Two or more edges meet at a _____.
 Another name for a corner is _____.
 When there is more than one corner we call them _____.
10. In each set write the statement which is true.
- a) Edges are straight or curved.
 Edges are flat or curved.
- b) Flat surfaces slide.
 Curved surfaces slide.

UNIT 11 FRACTIONS, SETS

Fractions

$\frac{1}{3}$, $\frac{1}{6}$, $\frac{1}{12}$ of a whole.

Look at these:



This shape is divided into 3 equal parts
1 of the 3 equal parts is shaded.

We say 'one third' is shaded.

We write $\frac{1}{3}$ is shaded.



This picture shows 6 equal parts.

In this picture 1 of the 6 equal parts is shaded.

We say 'one sixth' is shaded.

We write $\frac{1}{6}$ is shaded.



This strip shows 12 equal parts.

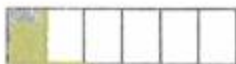
1 of the 12 equal parts is shaded.

We say 'one twelfth' is shaded.

We write $\frac{1}{12}$ is shaded.

Exercise A

1. Look at the diagrams below.



a)



b)



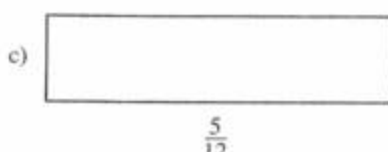
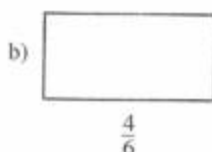
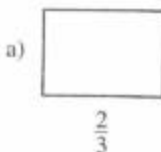
c)

Into how many equal parts is each divided?

How many equal parts are shaded on each?

Write a fraction for the shaded part in each.

2. Copy, divide and shade to show the fraction.



Fractional Parts of Sets

Exercise B

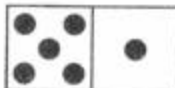
1. a) Look at this domino.

It has a set of dots.

How many dots are there in all?

How many of the set of dots are there on the right hand side?

We write 1 of the 6 dots as $\frac{1}{6}$ and it reads 'one sixth'.



- b) Draw a domino to show $\frac{1}{3}$ of the set of dots on the right hand side.

2. a) Look at the set of coins



Write a fraction to show what part of the set is \$5 coins.

- b) In this set there is one short pencil.

What fraction of the set of pencils is short?



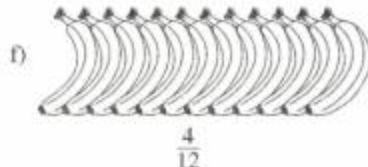
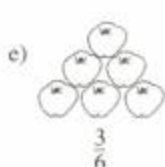
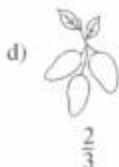
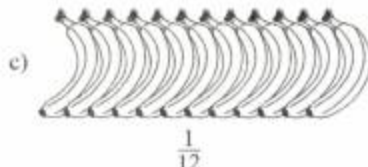
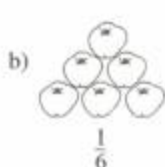
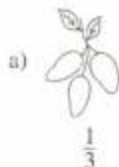
- c) Here is a set of glasses.

1 glass is empty.

What fraction of the set of glasses is empty?



3. Shade to show the fractions of each set.



4. Write the fraction for the shaded part of each set.



Compare Thirds, Sixths, Twelfths

Look at the fraction chart.

Arrange these from smallest to largest.

$$\frac{1}{3} \quad \frac{1}{6} \quad \frac{1}{12}$$

1											
$\frac{1}{3}$				$\frac{1}{3}$				$\frac{1}{3}$			
$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$	
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

Exercise C

1. Look at these pairs of fractions:

a) $\frac{1}{3}$ and $\frac{1}{6}$; $\frac{1}{3}$ and $\frac{1}{12}$; $\frac{1}{6}$ and $\frac{1}{12}$

Which fraction has the larger denominator in each pair?

Which is the larger fraction in each pair?

Write > or <

b) 3 6 and $\frac{1}{3}$ $\frac{1}{6}$

c) 12 3 and $\frac{1}{12}$ $\frac{1}{3}$

d) 6 12 and $\frac{1}{6}$ $\frac{1}{12}$

2. Write =, > or < to complete the comparisons.

$\frac{1}{3} \square \frac{2}{3}$ $\frac{1}{3} \square \frac{1}{6}$ $\frac{1}{3} \square \frac{1}{12}$

$\frac{1}{6} \square \frac{1}{6}$ $\frac{1}{12} \square \frac{1}{6}$ $\frac{1}{6} \square \frac{1}{12}$

$\frac{1}{12} \square \frac{2}{12}$ $\frac{1}{3} \square \frac{1}{2}$ $\frac{1}{3} \square \frac{1}{6}$

Remember

When comparing unit fractions, the one which has the larger denominator is always the smaller fraction.

Exercise D

1. a) Use the fraction chart.

Look at these fractions. $\frac{2}{3}$; $\frac{2}{6}$; $\frac{2}{12}$

Which is the largest fraction? Why?

Which is the smallest fraction? Why?

- b) Arrange these fractions from smallest to largest.

$$\frac{3}{3}; \quad \frac{3}{6}; \quad \frac{3}{12}$$

What is the denominator of

(i) the smallest fraction

(ii) the largest fraction?

What did you notice about the numerators of the three fractions?

When comparing fractions with the **same** numerator, the one with the larger denominator is the smaller fraction.

2. Complete these:

Use > or <

$$\frac{4}{6} \square \frac{4}{12}$$

$$\frac{2}{3} \square \frac{2}{12}$$

$$\frac{5}{12} \square \frac{5}{6}$$

$$\frac{3}{12} \square \frac{3}{6}$$

Exercise E

1. Write > or < to complete these statements.

a) $\frac{1}{3} \square \frac{2}{3}$

b) $\frac{1}{6} \square \frac{5}{6}$

c) $\frac{1}{12} \square \frac{3}{12}$

$$\frac{2}{3} \square \frac{3}{3}$$

$$\frac{3}{6} \square \frac{1}{6}$$

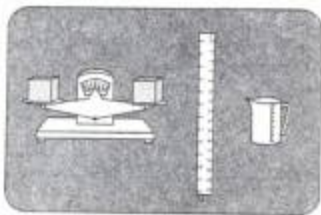
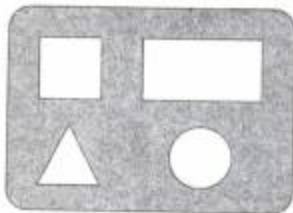
$$\frac{4}{12} \square \frac{2}{12}$$

When comparing fractions with the **same** denominator the smaller fraction has the smaller numerator; the larger fraction has the larger numerator.

Sets

Exercise F

1. Look at these sets:



Remember
A set is a collection of things.
The things have something in common.
The things are called members of the set.

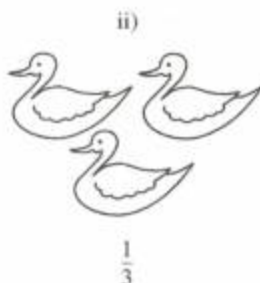
- a) What does each set contain?
What do these things have in common?
Name each set.
- b) Look at the set of fruits.
Name the members of the set of fruits.
List them in your books
Start like this: orange, banana, ...
Be sure to place a comma after each and a fullstop after the last one.
- c) List the members of the set of shapes and the set of measuring tools.
2. a) Make sets to show: odd numbers from 50 to 69; months of the year; school days of the week; books in your school bag; your friends in the class.
- b) List the members of each set.
3. a) Make up sets and take turns to list the members of the set you made.
- b) Make a set to show all the coins in Guyana currency.
State the number of members in the set.
List the members of the set.
What fraction of the set in \$10 coins?

REVIEW

1. a) Write the fraction for the shaded part(s) in each diagram below.



- b) Shade to show the fraction of the set.



2. Copy and complete. Use =, > or <.

$$\frac{2}{6} \square \frac{2}{3}$$

$$\frac{1}{12} \square \frac{1}{6}$$

$$\frac{1}{3} \square \frac{2}{6}$$

$$\frac{3}{6} \square \frac{6}{12}$$

3. a) Name this set.

2,	6,	10,	14,	20,	4
8,	12,	16,	18,	22,	24

State the number of members in the set.

List the members of the set.

What fraction of this set has:

1 in the tens place?

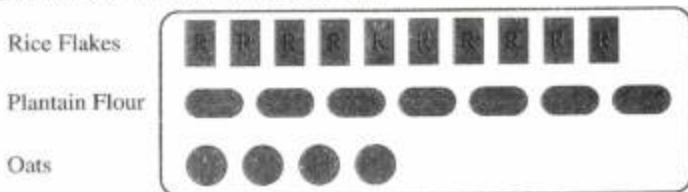
2 in the tens place?

What fraction is 1-digit numerals?

UNIT 12 GRAPHS

Pictograph, Bar Graphs and Pie Charts

The children of Group B drew pictures to show the kinds of breakfast cereal used one morning. Each picture represents one child who likes the cereal.



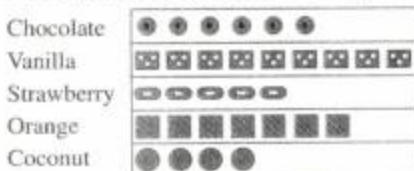
Look at the pictures. Answer the questions.

1. Name the breakfast cereals the children used.
2. How many children used:
a) oats b) rice flakes?
3. Which type of cereal did most children use?
4. Which was the least used cereal?
5. How many more children used rice flakes than plantain flour?
6. How many children are in this pictograph?

This graph is called a pictograph.
One picture represents one child who used the cereal.

Exercise A

1. Look at the pictograph. Answer the questions.



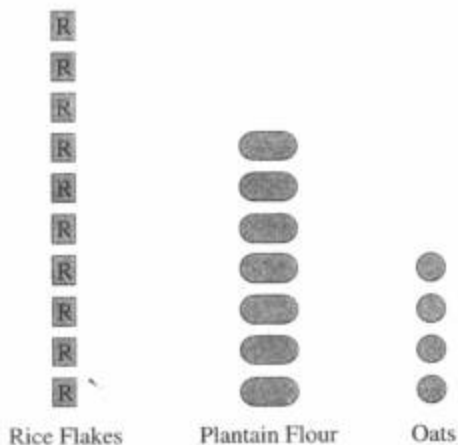
- a) How many kinds of cookies were sold at the canteen?
- b) Which kind of cookies did the canteen sell the most?
- c) How many more orange cookies were sold than strawberry?
- d) The kind of cookie sold the least was
- e) The total number of packets sold was

2. Here is another pictograph.
Some six year olds chose to do their art.
Read the pictograph. Answer the questions.



- Write the names of the shapes chosen.
- Which shape was chosen by most children?
- Which number represents the total number of children who chose squares and circles? 16, 12, or 9?
- Is the number Odd or Even. If we add one more child to the children who chose circles, the number will be twice as many as the children who chose.

Let us look again at the pictograph will the breakfast cereal.
Here is the information from that paragraph.



- Is the information the same?
- Is the graph the same?
- What is the difference between this graph and the other graph?

We can draw the same pictograph in two different ways.

Exercise B

1. Look at the graph. Answer the question.

Sizes of dresses in a boutique



- a) What are the sizes of the dresses?
b) Are there more or fewer size 6 than size 10?
c) Suppose a customer bought 2 size 8 dresses and 1 size 10, how many dresses will be left in the boutique?
d) The set of size 8 dresses is the same number as the set of size ____ dresses
e) If each dress costs \$1500, what will be the cost of all the size 10 and size 8 dresses?
2. Read the information:



The Sam's family made party hats like this
Mom made 6 hats; Dad made 2 hats; Ada made 5 hats.
The twins — Michelle and Michael looked on.
Make a pictograph to show this.

Answer the questions.

- a) How many persons make up the Sam's family?
(a) 2 (b) 3 (c) 5
- b) Mom made ____ hats more than Dad.
Mom made ____ hat more than Ada.
- c) How many hats did the twins make?
- d) If we share the hats equally among family members, how many hats will each get and how many will be left over?
- e) How many more than one dozen did the family make?

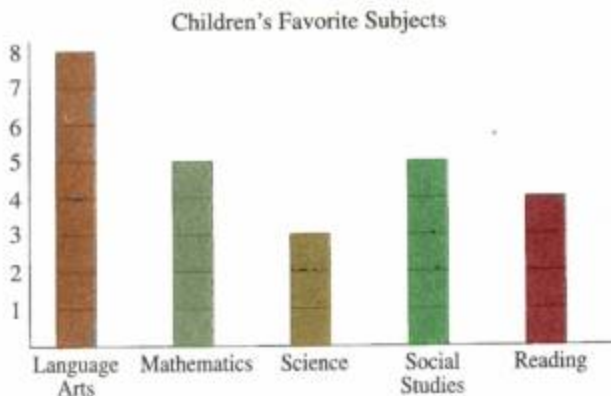
Block Graph

Remember

Each graph must have a name. The name states clearly the kind of information in the graph.
represents one object.

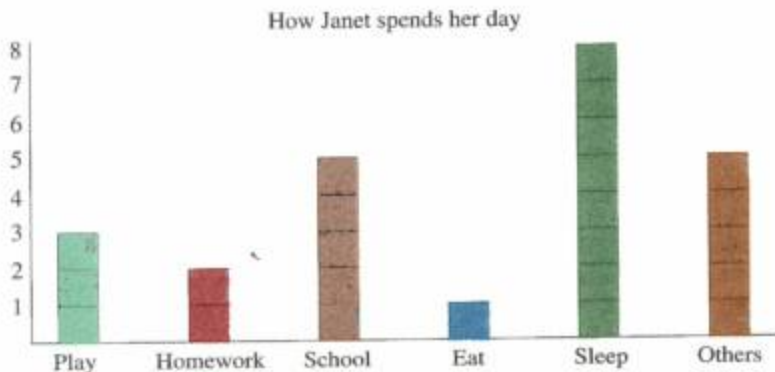
Exercise C

1.



Answer the questions:

- How many pupils liked each subject?
 - Did the same number of children like any 2 subjects? If so, write the names of the subjects.
 - If each subject takes 30 minutes, how many minutes will 5 subjects take?
2. Read the information on the graph. Answer the questions.
How Janet spends her day

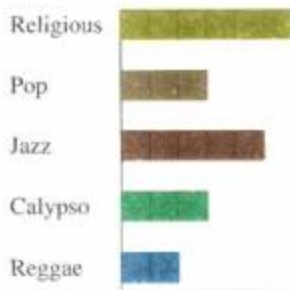


- How many hours did Janet spend:
i) eating ii) at play iii) in school iv) doing homework v) sleeping?
- Did she spend more time at play or in school?
- On which activity did she spend the least time?
- Janet spent some time reading library books, where would the activity fall?
- How many hours are there in a day?
- What fraction of the day was spent in school?

3. Look at Janet's graph. Think about how you spend your day. Name the things you do in a day. How much time do you spend doing each? Now make a graph to show how you spend your day.

Exercise D

1. Like the pictograph, we can put the same information on a horizontal block graph.
- Use the information on the block graph "Children's Favourite Subjects" and make a horizontal block graph.
 - Ask your friends to name some fruits they like. Make a block graph to show their choice.
2. This graph show Tim Brown's favourite cassettes.



- Which is Tim's most favourite collection?
- Look at Tim Brown's collection. Do you think he liked Reggae? Give reasons for your answer.
- Tim's next favourite collection is
- Tim's friend visited him. He borrowed one of each type of music. How many cassettes were left with Tim.
- Tim paid \$560 for a religious cassette and \$750 for a calypso. Find the total amount Tim spend on the two cassettes.
- Tim paid with a one thousand dollar note and three one hundred dollar notes. How much change did he receive?

Pie Charts

Look at this.

Favourite Indoor games chosen by Class 4.



This graph is called a pie chart.

We can read information from the pie chart.

Answer these questions.

- What is the pie chart showing?
- How many kinds of games do the children like playing?
- Which game did most children choose?
- Which was the least favoured game?
- What fraction of the children chose Bingo?

Exercise E

- Look at the pie chart and answer the questions.
Favourite books of some pupils



- Which book was the favourite of most children?
 - Which book did more children read, Animal Story or Mystery?
 - Which is the least favoured book? How can you tell?
 - How many favourite books are shown on the graph?
- Make a pie chart to show how you spend a day. Compare the parts.

Exercise F

In some graphs one symbol represents more than one object.

Here are some graphs.

One symbol represents two objects.

1. A trader sells these boxes of milk: Strawberry, Peanut Punch and Chocolate.

Read the graph and answer the questions.

1 picture represents two boxes



- a) How many of each does the trader have:

Strawberry ? Chocolate ? Peanut Punch ?

- b) On Thursday, the trader sold and .

This means a total of _____ sold in all.

- c) The amount of boxes of milk not sold is _____ boxes.

2. Here are the test scores of pupils:

Linda	25
Eon	20
Lisa	15
Lall	35
Devonna	40

Make a block graph to show these scores.

Let represents 5 marks.

Compare the blocks.

REVIEW

1. Write T if these statements are True and F if they are False.
 - a) A pictograph has pictures.
 - b) One picture always means one object.
 - c) The same information can be shown in two different ways.
 - d) Each graph must have a name which tells what the graph is about.
 - e) A pie chart has the shape of the circle.
 - f) Each part of a pie chart is called a picture.

2.



- a) What kind of graph is it?
- b) Choose a name for the graph?
 - i) Snackfoods
 - ii) Lunch
 - iii) Breakfast
- c) Which is the favourite?
- d) Which is the next favoured?

UNIT 13 FRACTIONS

Proper Fractions

Exercise A

1. a) Look at these shapes



Is the whole of any of the shapes shaded?

Do the shaded parts represent:

- i) the whole shape?
- ii) less than the whole?

Name the fractions for the shaded part in each.

Write the fractions.

Name some other fractions that represent less than a whole.

Fractions that are less than a whole are called **Proper Fractions**.

- b) Write the fraction for the shaded parts in each shape?

State whether it is a proper fraction or not.

Give reasons for your response.

Remember

$\frac{4}{5} \rightarrow$ Numerator

$\frac{4}{5} \rightarrow$ Denominator

Denominator tells into how many parts the whole is divided.

Numerator tells the number of parts we are thinking of.

2. a) Read the fractions.

Make the equal parts and shade to show these fractions.

i) $\frac{5}{12}$

ii) $\frac{3}{8}$

iii) $\frac{2}{3}$

iv) $\frac{7}{16}$



v) $\frac{4}{6}$

b) Copy the proper fractions from this set:

$\frac{1}{2}$; $\frac{4}{6}$; $\frac{3}{3}$; $\frac{5}{4}$; $\frac{3}{12}$; $\frac{5}{8}$; $\frac{9}{12}$; $\frac{11}{16}$; $\frac{14}{12}$

3. a) Look at these:

Complete the fractions in each column. The first is done for you.

Shapes	Number of equal parts	Shaded parts	Unshaded parts
	6	$\frac{2}{6}$	$\frac{4}{6}$
			

b) Name the parts of each fraction written in (a).

Add and Subtract Proper Fractions

Look at these

You need three strips of paper.

Show each step.



Each strip is divided into 4 equal parts.

On each strip, 1 of the 4 equal parts is shaded.

Each shaded part is $\frac{1}{4}$ (one quarter or one fourth).

Let us use the third strip to show the total number of shaded parts and write the number sentences.



$\frac{1}{4}$

+



$\frac{1}{4}$

=



$\frac{2}{4}$

Exercise A

1. Make strips and shade according to the fractions below:

a) $\frac{1}{2}$, then $\frac{1}{2}$

b) $\frac{1}{8}$, then $\frac{1}{8}$, then $\frac{1}{8}$

c) $\frac{1}{16}$, then $\frac{1}{16}$, then $\frac{1}{16}$, then $\frac{1}{16}$

d) $\frac{1}{3}$, then $\frac{1}{3}$

e) $\frac{1}{6}$, then $\frac{1}{6}$, then $\frac{1}{6}$

f) $\frac{1}{12}$, then $\frac{1}{12}$, then $\frac{1}{12}$, then $\frac{1}{12}$

Write the number sentence to show the total shaded parts.

What have you found out?

Remember

To add proper fractions with the same denominator, add the numerators.
The denominator remains the same.

2. Do these:



Look at these:



In this shape we see 8 equal parts. 3 of the 8 equal parts are shaded.



Cut off 1 of the 3 shaded parts. 2 shaded parts remain.

The subtraction sentence for this is:

$$\frac{3}{8} - \frac{1}{8} = \frac{2}{8}$$

Exercise B

1. Try these. Use paper shapes or strips.

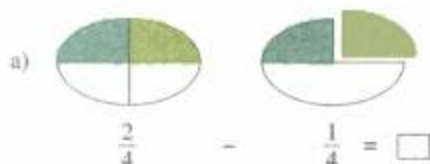
Shade $\frac{3}{4}$ $\frac{5}{8}$ $\frac{4}{6}$ $\frac{7}{12}$ $\frac{6}{16}$

Cut off $\frac{1}{4}$ $\frac{2}{8}$ $\frac{3}{6}$ $\frac{2}{12}$ $\frac{3}{16}$

Write a number sentence for each subtraction.
What have you found out?

To subtract proper fractions with the same denominator, subtract numerators.
The denominators remain the same.

2. Do these:



Exercise C

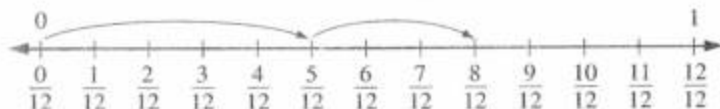
Let us add and subtract fractions on the number line:

1. Look at this:

- a) Anil rode to school. After he rode $\frac{5}{12}$ of the distance, his bicycle wheel went flat.

So he walked $\frac{3}{12}$ of the remaining distance and rested.

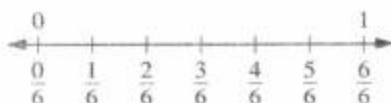
What fraction tells how much of the distance he has gone so far?



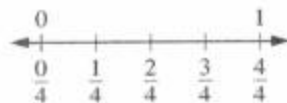
- b) Anil is returning home from school. This number line shows where he is now. Write to show how far he still has to go.



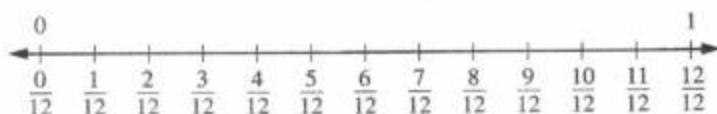
2. a) Copy and draw arrows on each number line to show the number sentence below it. Copy and complete the number sentence.



$$\frac{5}{6} - \frac{2}{6} = \square$$



$$\frac{3}{4} - \frac{2}{4} = \square$$

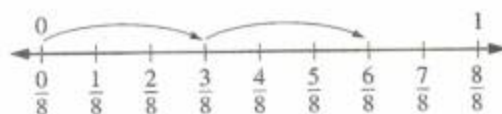
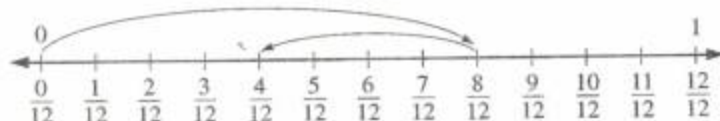
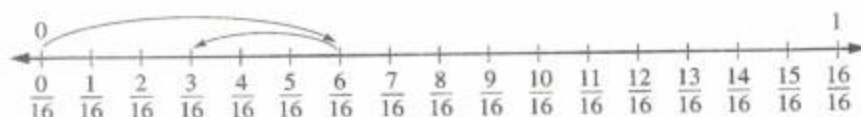
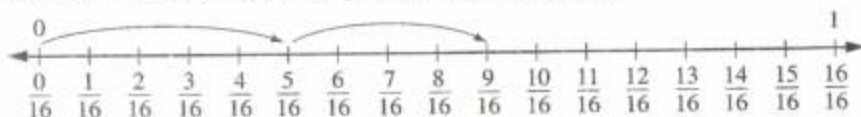


$$\frac{3}{12} + \frac{2}{12} + \frac{1}{12} = \boxed{}$$

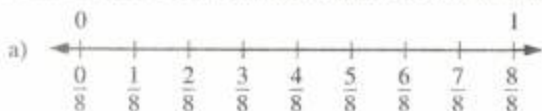


$$\frac{2}{8} + \frac{3}{8} + \frac{2}{8} = \boxed{}$$

b) Write the number sentence for the picture on each number line:



3. Name the points on the number line. Draw arrows to show the number sentence or story below it.



Anil spent $\frac{2}{8}$ of his money. Then he spent another $\frac{3}{8}$ of it.

- How much of his money did he spend altogether?
- How much money does he have left?

- b) Sue went to the park. This is how she travelled.

$\frac{4}{12}$ of the distance by bicycle; $\frac{6}{12}$ by car and the rest of the distance by walking.

How far did she go:

- by bicycle and car altogether?
- by bicycle and walking altogether?

REVIEW

1. Copy these fractions. Identify the numerator and denominator of each. Circle the proper fractions.

$$\frac{3}{4}; \quad \frac{7}{8}; \quad \frac{6}{6}; \quad \frac{9}{16}; \quad \frac{9}{12}; \quad \frac{2}{2}; \quad \frac{1}{3}$$

2. Complete these.
Use diagrams to help you.

a) $\frac{1}{2} + \frac{1}{2}$

d) $\frac{7}{12} - \frac{3}{12}$

b) $\frac{2}{6} + \frac{1}{6} + \frac{1}{6}$

e) $\frac{11}{16} - \frac{5}{16}$

c) $\frac{3}{8} + \frac{3}{8}$

f) $\frac{6}{8} - \frac{1}{8}$

3. a) List any answer in (2) which is not a proper fraction.
b) Draw a number line to show each (a–f) in (2).

UNIT 14 MASS; MULTIPLICATION

Kilograms and Grams

Hold a box of chalk. Estimate its mass.

Hold a plastic bag with awara seeds. Estimate its mass.

Hold a bag filled with clay. Estimate its mass.

Which weighs 1 kilogram?

Which weighs less than 1 kilogram?

Which weighs more than 1 kilogram?

Note your estimates.

We can use tins filled with sand as our measure.

We will also need a balance.

Look at these:



These are food items. They are sold in grams and kilograms.

To find the mass of food items the shopkeeper uses measures like these.



1 kg



$\frac{1}{2}$ kg



$\frac{1}{4}$ kg

We can use tins filled with sand as our measure.

We will also need a balance.

Your measures should look like these:



1000 g



500 g



250 g

Exercise A

1. Collect some solid objects and estimate their masses.

Measure their masses and record your findings on a table like this:

Objects		I estimated		I measured		
	1 kg	less than 1 kg	more than 1 kg	1 kg	$\frac{1}{2}$ kg	$\frac{1}{4}$ kg

Try to bring these objects into the classroom



stones



clay



oranges

2. Use your balance to measure these amounts

a) $\frac{1}{2}$ kg of stones

d) 1 kg of oranges

b) 1 kg of clay

e) $\frac{1}{2}$ kg of cherries

c) $\frac{1}{4}$ kg of cherries

f) $\frac{1}{4}$ kg of oranges

1 kilogram = 1000 grams

$\frac{1}{2}$ kilogram = 500 grams

$\frac{1}{4}$ kilogram = 250 grams

Compare Kilograms and Grams

3. Compare these mass using >, < or =

a) $\frac{1}{4}$ kg ☐ 150 g

d) $\frac{1}{2}$ kg ☐ 500 g

b) 253 g ☐ $\frac{1}{2}$ kg

e) 550 g ☐ $\frac{1}{2}$ kg

c) 1000 g ☐ 1 kg

f) 950 g ☐ 1 kg

Multiplication Facts

Look at the multiplication chart:

x	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50

4. Filling in the missing numerals:

a) $\square \times 3 = 3$

b) $\square \times 5 = 10$

c) $\square \times 4 = 12$

d) $\square \times 6 = 24$

e) $\square \times 2 = 18$

f) $4 \times \square = 16$

g) $2 \times \square = 14$

h) $5 \times \square = 5$

i) $7 \times \square = 28$

f) $9 \times \square = 9$

Exercise B



Here are 3 cards with
6 beads on each card.
There are 18 beads in all.
 $3 \text{ groups of } 6 = 18$
 $3 \times 6 = 18$



Here are 4 strings with
7 buttons on each string.
There are 28 buttons in all.
 $4 \text{ groups of } 7 = 28$
 $4 \times 7 = 28$

1. Use your beads/seeds to find out:

a) 2 groups of 6

b) 7 groups of 6

c) 5 groups of 6

d) 9 groups of 6

e) 1 group of 6

f) 7 groups of 7

g) 6 groups of 7

h) 9 groups of 7

i) 5 groups of 7

j) 8 groups of 7

2. Complete these:

a) 6×0

b) 6×4

c) 6×6

d) 6×8

e) 6×3

f) 7×1

g) 7×5

h) 7×7

i) 7×0

j) 7×9

3. a)
$$\begin{array}{r} 32 \\ \times 6 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 45 \\ \times 6 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 69 \\ \times 6 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 78 \\ \times 6 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 25 \\ \times 7 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 31 \\ \times 7 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 48 \\ \times 7 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 67 \\ \times 7 \\ \hline \end{array}$$

Exercise C

Complete these:

a) $0 \times 8 = \square$

f) $0 \times 9 = \square$

b) $1 \times 8 = \square$

g) $1 \times 9 = \square$

c) $3 \times 8 = \square$

h) $4 \times 9 = \square$

d) $5 \times 8 = \square$

i) $6 \times 9 = \square$

e) $8 \times 8 = \square$

j) $7 \times 9 = \square$

Any number multiplied by 0 the answer is 0.

Any number multiplied by 1 the answer is the number itself.



In this picture we see 4 groups of marbles with 3 in each group.

Write $4 \times 3 = 12$



Now we see 3 groups of marbles with 4 in each group.

Write $3 \times 4 = 12$

The answer each time is the same.

The order in which two numbers are multiplied does not change the answer.

Exercise D

Complete these:

a) $5 \times 4 = \square$

e) $8 \times 4 = \square$

b) $4 \times 5 = \square$

f) $4 \times 8 = \square$

c) $7 \times 6 = \square$

g) $9 \times 3 = \square$

d) $6 \times 7 = \square$

h) $3 \times 9 = \square$

REVIEW

Copy and complete:

a) $2 \times 0 \times 5 = \square$

f) $3 \times 1 \times 6 = \square$

b) $4 \times 6 \times 0 = \square$

g) $5 \times 7 \times 1 = \square$

c) $7 \times 0 \times 3 = \square$

h) $8 \times 2 \times 1 = \square$

d) $1 \times 0 \times 9 = \square$

i) $9 \times 1 \times 4 = \square$

e) $8 \times 4 \times 0 = \square$

j) $6 \times 5 \times 1 = \square$

2. Now try these:

a)
$$\begin{array}{r} 42 \\ \times 6 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 50 \\ \times 6 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 103 \\ \times 7 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 121 \\ \times 7 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 36 \\ \times 7 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 205 \\ \times 8 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 314 \\ \times 8 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 410 \\ \times 9 \\ \hline \end{array}$$

3. Solve these problems:

- a) A farmer planted 4 beds of tomatoes. On each bed he planted 27 tomato plants.
How many plants were there in all?
- b) 6 mini-buses took the pupils of a school on an outing.
There were 40 pupils on each bus.
How many pupils went on the outing?
- c) In the hall there are tens rows of seats. Each row has 39 seats.
How many seats are there in the hall?

UNIT 15 CAPACITY; MULTIPLICATION

Litre and Millilitre

- a) Find containers that you can use as units of measure for the litre and the millilitre.



Collect as many different containers as possible.



Estimate, in either litre or millilitre, the amount of liquid each container can hold.
Use your units of measure to find out.
Label your containers stating their capacity.
Arrange the containers in order of capacity.

- b)



Use your millilitre measure to fill the litre measure.
Count as you pour from millilitre to litre.
How many millilitres did you pour into the litre measure to fill it?

1000 millilitres = 1 litre.

Multiplication

Exercise A

1. Complete these:

$9 \times 0 = \square$

$4 \times 7 = \square$

$2 \times 8 = \square$

$8 \times 2 = \square$

$5 \times 7 = \square$

$7 \times 6 = \square$

$9 \times 2 = \square$

$4 \times 6 = \square$

$9 \times 4 = \square$

$4 \times 8 = \square$

$8 \times 7 = \square$

$9 \times 5 = \square$

$9 \times 3 = \square$

$7 \times 7 = \square$

$7 \times 8 = \square$

$6 \times 8 = \square$

$9 \times 7 = \square$

$9 \times 9 = \square$

- 2.
- | | | | | | |
|--|--|--|--|--|--|
| $\begin{array}{r} 79 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 73 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 57 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 89 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 76 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 75 \\ \times 6 \\ \hline \end{array}$ |
| $\begin{array}{r} 89 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 89 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 75 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 94 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 85 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 96 \\ \times 8 \\ \hline \end{array}$ |
| $\begin{array}{r} 491 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 699 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 509 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 620 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 789 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 328 \\ \times 3 \\ \hline \end{array}$ |
| $\begin{array}{r} 627 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 789 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 437 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 709 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 548 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 378 \\ \times 4 \\ \hline \end{array}$ |

Exercise B

Work these:

1. Multiply seventy-eight by five.
2. What number is equal to eight times four hundred and twenty seven?
3. Find the product of nine and four hundred and eighteen.
4. What number is equal to nine times six hundred and thirty five?

5. If a machine can stamp 460 letters in one hour, how many will it stamp in 9 hours?
6. What number is seven times five hundred and thirty two?
7. Find the product of eleven and two hundred and nine.
8. If a packet of envelopes contains 450, how many envelopes will there be in 8 such packets?
9. What number is four times one hundred and fifty?

Exercise C

1. Multiply by 10 and 100.

$$\begin{array}{r} 36 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 650 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 376 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 402 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 32 \\ \times 100 \\ \hline \end{array}$$

$$\begin{array}{r} 64 \\ \times 100 \\ \hline \end{array}$$

$$\begin{array}{r} 40 \\ \times 100 \\ \hline \end{array}$$

$$\begin{array}{r} 708 \\ \times 100 \\ \hline \end{array}$$

$$\begin{array}{r} 490 \\ \times 100 \\ \hline \end{array}$$

$$\begin{array}{r} 311 \\ \times 100 \\ \hline \end{array}$$

2. Copy and complete:

$$\begin{array}{r} \$153 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \$205 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \$321 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \$621 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} \$850 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 85 \text{ mm} \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \text{ cm} \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 132 \text{ m} \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 260 \text{ m} \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 105 \text{ cm} \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 150 \text{ kg} \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 402 \text{ kg} \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 84 \text{ g} \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 124 \text{ g} \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 650 \text{ g} \\ \times 9 \\ \hline \end{array}$$

LET US LOOK BACK

1. Copy and complete:

Use =, > or <

$$\frac{1}{3} \square \frac{2}{3}$$

$$\frac{5}{6} \square \frac{1}{6}$$

$$\frac{2}{8} \square \frac{7}{8}$$

$$\frac{2}{4} \square \frac{4}{4}$$

$$\frac{4}{8} \square \frac{4}{8}$$

$$\frac{5}{12} \square \frac{5}{12}$$

$$\frac{9}{12} \square \frac{3}{12}$$

$$\frac{6}{16} \square \frac{3}{16}$$

$$\frac{1}{2} \square \frac{1}{2}$$

2. Make a set to show the children in your class.

Write a fraction to show:

- the boys in the set
- the girls in the set
- the children with short hair in the set.

3. Add and Subtract:

$$\frac{1}{8} + \frac{2}{8} + \frac{3}{8}$$

$$\frac{7}{16} + \frac{2}{12}$$

$$\frac{2}{6} + \frac{3}{6}$$

$$\frac{9}{12} + \frac{4}{12}$$

$$\frac{4}{12} + \frac{3}{12} + \frac{2}{12}$$

$$\frac{6}{6} + \frac{1}{8}$$

4. Plot a block graph to show how the children in your class get to school.
5. This is how Joan spent \$100. She paid \$50 for books, \$25 for candies and \$25 for a dress. Draw a pie chart to show this. Compare her spendings.
6. Look at the containers below.
Estimate the capacity of each in litres.
Arrange the containers in order from largest to smallest.



A



B



C

UNIT 16

ANGLES; PLANE SHAPES

What you need to know about a right angle.

1. a) Take a paper like this. b) Fold the bottom end. c) Fold along one side.



- d) Open the folder paper. Trace over lines. e) Cut along the traced lines. f) You now have a model of a **right angle**.



Now do this:

2. This is a horizontal line _____, this is a vertical line |

- a) Look at a corner of this page. Does it look like a right angle?
- b) Try to fit your model of a right angle over each corner of this page.
- c) Try other pages and the cover of this and other books.
- d) Take two pencils. Lay one pencil like this _____, place the other pencil like this |

Let them touch, we now have an angle.

- e) Name the objects that are shaped like right angles.

Remember

This is an angle |

We call this point the vertex

The vertex is always in the middle, for example, C |

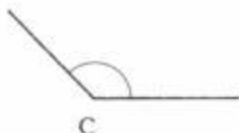
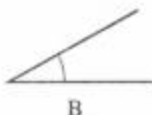


Exercise A

Which one is an angle?



Look at these angles:



The angle at (A) is called a **right angle**.

Is it different from the others?

The angle at (B) is smaller than a right angle.

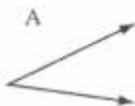
It is an **acute angle**.

Which is the largest angle?

Which one is the smallest?

Exercise B

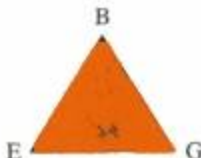
Look at these angles. Which one is a right angle?



Triangles

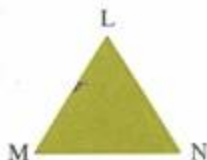
Exercise C

This is a triangle.
It has 3 sides.



BE is one side of the triangle.
Look at the other two sides.
Can you name the other two sides?

Look at triangle LMN.
One angle is at M.
Name the other angles?



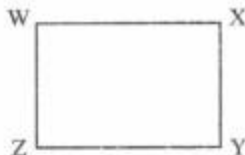
Look at triangle LMN again.
Point L is a vertex.
How many other vertices are there?
Name them.

A triangle has three sides,
three angles and three vertices.

Rectangles and Squares

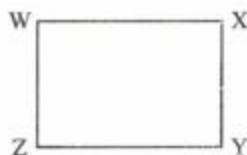
Exercise D

Look at rectangle ABCD.
AB is one side.
Name the side opposite to AB.
Is the side AD the same length as DC?
ABC is one right angle.
How many right angles are there in the rectangle ABCD?



A rectangle has four sides and four right angles.
The opposite sides of the rectangle have the same length.

Look at the square.
Is it like a rectangle?
Name the sides of the square.
How many right angles are there on a square?
Name them.



A square has four equal sides and four right angles.

Look at the circle.
Point P is the centre of the circle.
Try to draw a circle in different ways.

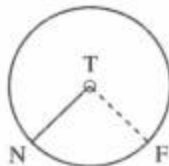


Draw around a tin.



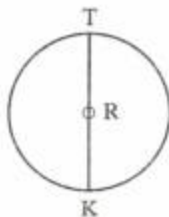
Use two pencils and a paper clip.

T is the centre of this circle.
N is a point on the circle.
TN is a line drawn from the centre (T) to the point N on the circle.
TN is a **radius** of the circle.
Name another radius of this circle.



A radius is a line drawn from the centre of a circle to any point on the circle.

R is the centre of the circle.
E and K are points on the circle.
EK is a line drawn through the centre of the circle.
EK is the **diameter** of the circle.



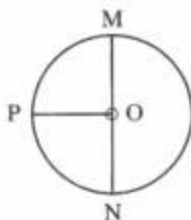
A diameter is a line drawn through the centre of the circle to two points on the circle.

Exercise E

Look at this circle.

Name:

- a) The centre of the circle.
 - b) A radius of the circle.
 - c) A diameter of the circle.
 - d) All the marked points on the circle.
- 2.
- a) Draw a circle and name the centre E.
 - b) Draw a radius EF.
 - c) Draw two diameters GH and IJ



Remember

A circle is a plane shape bounded by a curved line.

The diameter is a line joining two points of the circle.

It passes through the centre of the circle

The radius is the distance from centre to any point on the circle.

UNIT 17 TIME INTERVALS

Intervals of Hours and Minutes



Exercise A

1. Use your 12 hr and 24 hr clock faces to find:

- | | |
|----------------|----------|
| a) half past 3 | b) 08:45 |
| c) 5 past 4 | d) 20:40 |
| e) 11:00 | |

What is the time when the clock shows:

- | | |
|---------------------------------------|-----------------------------------|
| a) 15 minutes after 12 in the morning | e) 1 hour after 9 in the morning? |
| b) 30 minutes after 07:00 h? | f) 30 minutes before 10:30 h? |
| c) 1/4 hour before 12:00 noon? | g) 1 hour before 09:00 h? |
| d) 1 hour after 12 noon? | h) 1 hour after 15:00 h? |

Exercise B

Look at this flight schedule and answer the questions below.

Flight Number	From	Departure Time	Time Due in Guyana
NY600	N.Y.	11:00 h	16:45 h
BY493	B'DOS	08:45 h	09:50 h
BY504	T'DAD	07:15 h	08:00 h

- a) If flight NY600 arrived at 17:00 h, how many minutes late was this flight?
- b) The flight from Trinidad arrived at 08:05 h. By how many minutes was it late?
- c) Tom went to the airport at 9:15 h to meet his aunt who was on flight BY493. How many minutes did he have to wait?

Calendar

Look at the calendar in your classroom.

1. Use it to help you find the number of:
 - a) days in a week.
 - b) months in a year
2. Find on your calendar:
 - a) the month which has the shortest name.
 - b) the month with the least number of days.
3. Answer these questions:
 - a) How many days are there from May 10 to June 10?
 - b) There are — days between Sunday and Thursday.
 - c) How many weeks and days are there from August 01 to September 30?

Exercise C

Here is a chart showing the birth-months of 5 children.

Children	Month
May	June
Terry	March
Pearl	December
Reena	August
Rishi	April

Now answer these questions.

- a) Whose birthday was in March?
- b) Pearl was born in the month of _____.
- c) After May's birthday, how long must Reena wait to have her birthday?
- d) There are ____ months between Rishi's birthday and Pearl's.

Multiplication 1 and 2 Digit Numbers

Multiply 36 by 3

$$\begin{array}{r} \text{T} \quad \text{O} \\ 3 \quad 6 \\ \times \quad 3 \\ \hline \end{array}$$

Multiply 6 ones by 3 = 18 ones

18 ones = 1 ten and 8 ones

Multiply 3 tens by 3 = $3 \times 3 = 9$ tens

9 tens + 1 ten = 10 tens = 100

$100 + 8 = 108$

so, $36 \times 3 =$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 3 \quad 6 \\ \times \quad 3 \\ \hline 108 \end{array}$$

Here is another way 36×3

$36 = 3$ tens and 6 ones

Multiply 3 tens by 3 = 9 tens = 90

Multiply 6 ones by 3 = 18

so, $36 \times 3 = 90 + 18 = 108$

Multiplication

Exercise A

1. a) $\begin{array}{r} \$20.00 \\ \times \quad 5 \\ \hline \end{array}$

b) $\begin{array}{r} 6 \text{ m} \\ \times \quad 12 \\ \hline \end{array}$

c) $\begin{array}{r} 15 \text{ kg} \\ \times \quad 6 \\ \hline \end{array}$

d) $\begin{array}{r} 121 \\ \times \quad 14 \\ \hline \end{array}$

e) $\begin{array}{r} \$25.00 \\ \times \quad 15 \\ \hline \end{array}$

f) $\begin{array}{r} 60 \text{ kg} \\ \times \quad 45 \\ \hline \end{array}$

Exercise B

Read and solve.

- Six times 25 kg = ____ kg.
- Each child in Primary 2 gets \$200 a day. How much money will 40 children get?
- The length of one desk is 90 cm. Find the length in cm of 35 desks?
- A bottle holds 3 litres of milk. How many litres will 21 bottles hold?

REVIEW

1. Read and write the time.
 - a) 12 minutes past 2
 - b) $\frac{1}{2}$ hr after 4:00 h
2. Solve these problems:
 - a) John arrived at school at 8:05 h. Mary arrived 35 minutes later. What time did Mary arrive?
 - b) Today is Tuesday. What day will be the day after tomorrow?
 - c) Which is the fifth month of the year?
 - d) How many months are there between the 6th and the 10th month of the year?
3. Multiply these:
 - a) 15×3
 - b) 28×7
 - c) 80×12
 - d) $13 \text{ kg} \times 5$
 - e) $\$32 \times 8$
 - f) 561×18
 - g) An exercise book page has 20 lines. How many lines will 14 pages have?
 - h) How many sweets are shared to 32 children, if each child gets 6 sweets?

UNIT 18 MEASUREMENT

Millimetre and Centimetre

Look at this ruler



What is the unit of measure on this ruler?

Read the numerals on this ruler. How many lines are there in all?

Look at the smaller lines between any two numerals, for example, between 2 and 4, 4 and 6.

Is it the same number between any two?

Check to find out.

Each space between two numerals is 2 centimetres.

Each smaller space is 2 millimetres.

1 cm = 10 mm

Exercise A

Now do these:

1. Use your ruler to find the answers to these:

How many mm are there in: a) 2 cm

b) 5 cm?

How many cm are there in: a) 10 mm

b) 30 mm?

2. Copy and complete:

The first is done for you.

a) 40 mm = 4 cm

b) 6 mm = ____ cm

c) 90 mm = ____ cm

d) 7 mm = ____ cm

Millimetre

Here are some lines.



a)



b)



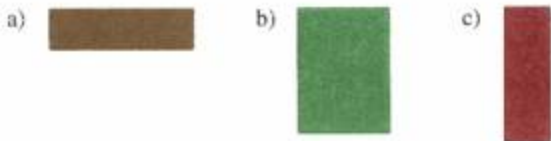
c)

How many millimetres do you think each line measures?
Record your estimate.
Now use your ruler to verify your estimate.
Check your estimate with the measurement. Compare them.

Exercise B

1. List four objects which can be measured in millimetres.
Estimate the length of each in millimetres.
Use your ruler, measure and record as you did before.

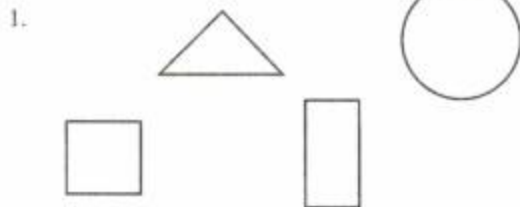
2. Here are three shapes.



Use your ruler to measure the length of each shape.

3. Use your ruler to draw these lines:
a) 10 mm b) 45 mm c) 60 mm

REVIEW



Estimate the lengths between each set of shapes as shown.
How far is the:

- a) triangle from the circle?
b) square from the rectangle?
2. Measure each of these in millimetres.
- a) The length of your longest finger.
b) The width of your sharpener.
c) The length of your eraser.

UNIT 19 FRACTIONS

Fifths and Tenths

Look at the diagram:



How many equal parts are there?

How many of the equal parts are shaded?

1 out of 5 equal parts is shaded.

That is $\frac{1}{5}$ is shaded

Look at this:



How many equal parts are there?

How many of the equal parts are shaded?

1 out of 10 equal parts is shaded.

That is $\frac{1}{10}$ is shaded.

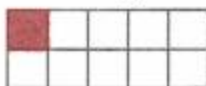
Exercise A

1. Write the fraction that tells what part is shaded in each of these:

a)



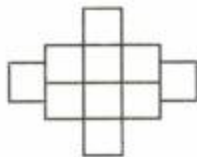
b)



c)



2. Draw and shade each to show the fraction:



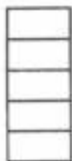
$$\frac{1}{2}$$



$$\frac{1}{5}$$



$$\frac{1}{10}$$



$$\frac{1}{5}$$



$$\frac{1}{10}$$



$$\frac{1}{5}$$

Compare Fifths and Tenths
Look at the fraction chart below.

whole	1									
fifths	$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$	
tenths	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

Which is greater $\frac{1}{5}$ or $\frac{1}{10}$?

So, $\frac{1}{5} > \frac{1}{10}$ and $\frac{1}{10} < \frac{1}{5}$

Exercise B

1															
$\frac{1}{2}$								$\frac{1}{2}$							
$\frac{1}{4}$				$\frac{1}{4}$				$\frac{1}{4}$				$\frac{1}{4}$			
$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$	
$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$

1. Use the fraction chart above to compare the following: Put $>$ or $<$.

a) $\frac{1}{4}$ $\frac{1}{2}$

f) $\frac{1}{8}$ $\frac{1}{16}$

b) $\frac{1}{8}$ $\frac{1}{2}$

g) $\frac{1}{16}$ $\frac{1}{2}$

c) $\frac{1}{4}$ $\frac{1}{8}$

h) $\frac{1}{2}$ $\frac{1}{8}$

d) $\frac{1}{4}$ $\frac{1}{16}$

i) $\frac{1}{8}$ $\frac{1}{4}$

e) $\frac{1}{2}$ $\frac{1}{4}$

j) $\frac{1}{16}$ $\frac{1}{4}$

2. Arrange $\frac{1}{8}$; $\frac{1}{4}$; $\frac{1}{16}$ and $\frac{1}{2}$ in order of size starting with the largest.
Look at the denominators. What do you notice?

In unit fractions, the bigger the denominator,
the smaller the fraction.



3. Use the fraction chart above to compare the following. Put $>$ or $<$.

a) $\frac{1}{3}$ $\frac{1}{12}$

b) $\frac{1}{12}$ $\frac{1}{6}$

c) $\frac{1}{6}$ $\frac{1}{3}$

d) $\frac{1}{12}$ $\frac{1}{3}$

e) $\frac{1}{12}$ $\frac{1}{3}$

f) $\frac{1}{6}$ $\frac{1}{12}$

4. Arrange $\frac{1}{6}$; $\frac{1}{3}$ and $\frac{1}{12}$ in order of size starting with the largest.

Look at the denominators.

Is it true that the fraction with the larger denominator is the smaller fraction?

Try this with other fractions.

Equivalent and Equal Sets



How many crayons are there in each set?

Remember

Each item in a set is a **member** of the set.

Sets may have many, few, one or no members.

Sets with no members are called **empty** sets.

We can match the members of 2 sets one-to-one.



Trace along the dotted lines from the butterfly to the flower.

You have matched a butterfly with a flower in each case.

Is any member of either set left out?

What is common in these two sets?

Sets like these, with the same number of members but not the same members, are called **equivalent** sets.

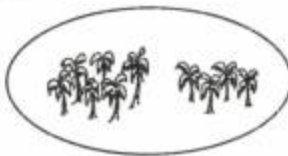
Exercise A

How many members are there in each set?

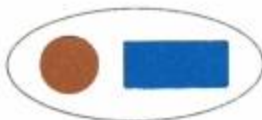


Which two sets above are equivalent?

2. Copy these sets and make them equivalent.



3. Are these pairs of sets equivalent?
Write YES or NO



Equal Sets

Here are two sets.

Set A



Set B



How many members are there in Set A? Set B

Can you match each member of Set A with the same member of Set B?

Are the members in Set A exactly the same as the members in Set B?

If the members in Set A are exactly the same as the members, in set B; the two sets are said to be equal.

Exercise B

1. Count the number of members in each set.
Examine the members carefully.
Are the sets equal?
Write YES or NO

a) $\begin{array}{ccc} 5 & & 9 \\ & 12 & \end{array}$

$\begin{array}{ccc} 12 & & A5 \end{array}$

b) $\begin{array}{ccc} 1C & 5C & 10C \\ & 25C & \end{array}$

$\begin{array}{ccc} 25C & 1C & 10C \\ & 5C & \end{array}$

c) $\begin{array}{ccc} F & C & D \\ A & E & B \end{array}$

$\begin{array}{ccc} A & C & E \\ C & G & F \end{array}$

d) $\begin{array}{ccc} - & & + \\ x & & \div \end{array}$

$\begin{array}{ccc} x & & \div \\ - & & + \end{array}$

Remember

Sets which have the same number of the same members are equal.
The members of equal sets need not be in the same order.
The symbol (=) is used to state the equality of two sets.

Exercise C

1. Complete these to make them equal.

a) $\begin{array}{cccc} 2 & 4 & 6 & 8 \end{array}$

= $\begin{array}{c} \end{array}$

b) $\begin{array}{cccc} \text{CONE} & \text{CYLINDER} & \text{SPHERE} & \end{array}$

= $\begin{array}{c} \end{array}$

c) $\begin{array}{cccc} \text{RED} & \text{BLUE} & \text{WHITE} & \end{array}$

= $\begin{array}{c} \end{array}$

2. Say whether these sets are equal or equivalent.

a)

X V IX

17 19 25

b)

A I E O U

U O E I A

c)



d)

13 17 21 15 19

64 68 60 62 66

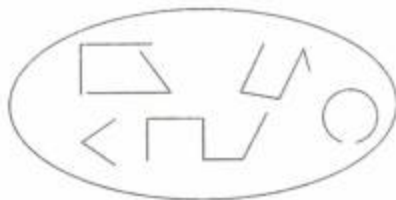
Closed and Open Shapes

Here are two sets of shapes

Set A



Set B



What do you notice about the members of these sets?

The shapes in set A have their line segments joined.

We call these **closed shapes**.

The shapes in Set B have line segments that are broken.

We call these open shapes.

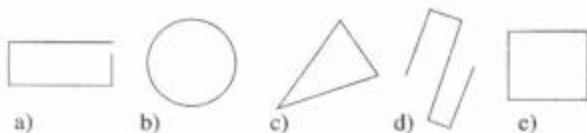
Shapes may be closed or open.

Exercise D

1. Draw: a) 2 closed shapes. b) 2 open shapes.
2. Copy and complete these shapes below to make closed shapes.

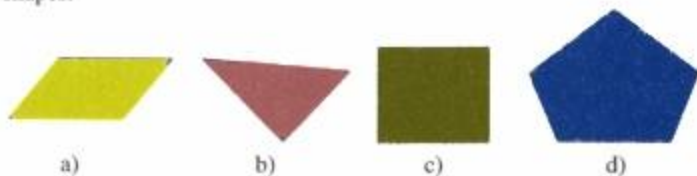


3. Look at the shapes below.
How many closed shapes are there?
Write the letters of the closed shapes.



Polygons

Examine these shapes.



Exercise E

1. Use your finger to trace around each shape above.
As you do so count the number of line segments which make up the shape.
Copy the table below.
Record the information from the activity above your table.

Shape	Number of line segments
a	
b	
c	
d	

What do you notice about the shapes?

The number of sides vary.

They are all closed shapes.

The line segments that form the sides are straight.

Closed shapes bounded by only straight lines are called **polygons**.

'Poly' means many; 'gons' means corners

Polygons are simple closed shapes
formed by line segments.
Each line segment is a side.



Look at this polygon.
What is it called?

A polygon with 3 sides is a triangle.



Count the number of sides on each polygon.

Polygons like these are quadrilaterals.
A quadrilateral has 4 sides.

This is a polygon with 5 sides.



A polygon with 5 sides is a pentagon.

Facts for you to learn

Polygon	No. of sides	Angles
Triangle	3	3
Quadrilateral	4	4
Pentagon	5	5

Exercise F

1. Use toothpicks, strips of paper or rubber bands and a geoboard to make polygons with up to 5 sides.
2. Look at these polygons. Find the triangles, quadrilaterals, pentagons. Record your answers on a table.



a)



b)



c)



d)



e)

Polygons



Make three triangles like these.

Place them one on top of the other.

What did you find out?

The three triangles fit exactly on top of each other.

They are the same shape and size.

We say they are congruent.

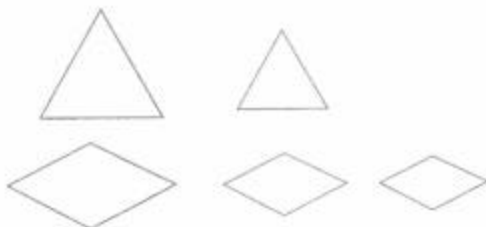
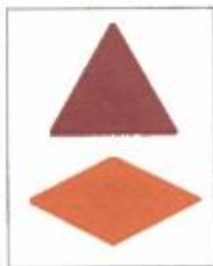
Try this with pentagons and quadrilaterals.

Did you find pentagons and quadrilaterals that fit exactly on each other?

Polygons which have the same size and shape are **congruent polygons**.

Exercise G

1. Which polygon is congruent to the one on the left?



2. Find 2 congruent polygons in the row below.
Write the letters.



REVIEW

1. Use tracing paper and trace this square.
Cut it out.



Draw a line on the diagonal like this.



Cut along the line.
Name the shapes you now have.
Are they congruent?

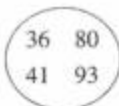
2. Which of these sets are equal and which are equivalent?
Write the letter.



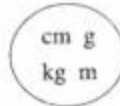
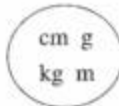
a)



b)






c)



d)

3. Copy and complete.
The first is done for you.

Shape	Name	No. of sides
1. 	triangle	3
2. 	_____	_____
3. 	_____	_____
4. _____	quadrilateral	_____

LET US LOOK BACK

- Use your calendar.
 - Name the 8th month of the year.
 - Which month comes — before the 8th month?
— after the 8th month?
- Marnice's birthday is in January.
Voan's birthday is in June.
How many months are there between Marnice's and Voan's birthday?
 - Freedom Day is in August.
Christmas Day is in December.
How many months are there between Freedom Day and Christmas Day?
- Use your centimetre rule.
Which unit of measure will be most suitable to find the length of:
 - a pencil sharpener?
 - the point of your pencil?
 - a match?
 - the sulphur on a match?
 - an exercise book?

4. a) Use $>$ or $<$ to complete the comparisons.

i) $\frac{1}{5}$ $\frac{1}{10}$

ii) $\frac{1}{12}$ $\frac{1}{10}$

iii) $\frac{1}{6}$ $\frac{1}{3}$

iv) $\frac{1}{3}$ $\frac{1}{5}$

- b) Arrange these from smallest to largest.

$$\frac{1}{3}, \frac{1}{6}, \frac{1}{12}, \frac{1}{5}, \frac{1}{10}$$

5. Which pair(s) show

a) equal sets?

b) equivalent sets?

i)

1	5	3
9	7	

1	4	3
8	6	

ii)

UNIT 21 DIVISION

Division without Regrouping

Look at this problem $2\sqrt{264}$

This numeral is made up of: 2 hundreds 6 tens 4 ones

Use 2 bundles of 100, 6 bundles of 10, 4 single sticks.

Share these equally with a friend.

Check your share.

What do you have?

1 bundle of 100, 3 bundles of 10 2 single sticks.

This gives 1 hundred 3 tens and 2 ones

$$\text{So, } 2\sqrt{264} = 132 \text{ or } 2\sqrt{\frac{132}{2}}$$

Now do these in the same way:

Exercise A

1. (a) $3\sqrt{369}$ (b) $4\sqrt{484}$ (c) $5\sqrt{505}$
(d) $6\sqrt{666}$ (e) $7\sqrt{707}$ (f) $7\sqrt{909}$
(g) $3\sqrt{69}$ (h) $4\sqrt{80}$ (i) $2\sqrt{842}$
2. Solve these problems
- a) Rishi has 20 marbles. He shares them equally between Harry and Danny. How many marbles does each boy get?
- b) Divide 396 oranges into 3 equal groups. How many oranges will there be in each group?
- c) 4 children have to share 88 sweets equally. How many sweets will each child get?
- d) A farmer has 500 suckers. If he plants them 5 in a row, how many rows will he get?

Exercise B

Divide these:

1. (a) $2 \sqrt{260 \text{ m}}$ (b) $3 \sqrt{393 \text{ cm}}$ (c) $4 \sqrt{84 \text{ km}}$
 (d) $5 \sqrt{500 \text{ kg}}$ (e) $6 \sqrt{660 \text{ g}}$ (f) $7 \sqrt{770 \text{ g}}$
 (g) $8 \sqrt{808}$ (h) $4 \sqrt{88 \text{ ml}}$ (i) $9 \sqrt{990}$

2. Solve these problems.
 - a) A string 84 m long is cut into three equal lengths. What is the length of each part?
 - b) 68 kg of potatoes is put into 2 bags so that each bag has the same mass. What is the mass of each bag?
 - c) \$480 is shared among 4 boys. Each boy has the same amount. What is each boy's share?
 - d) 550 litres of water must fill 9 tanks of equal capacity. How many litres will there be in each tank?

Divide and Regroup

Look at this problem $2 \sqrt{236}$

Use your bundles and single sticks to show this numeral in expanded form.

Share the bundles and single sticks equally with a friend.

Record each share: 1 hundred 1 ten 8 ones

Each child has $100 + 10 + 8 = 118$

$$\text{So, } 2 \sqrt{236} = 118$$

Exercise C

1. (a) $2 \sqrt{238}$ (b) $3 \sqrt{432}$ (c) $4 \sqrt{148}$
 (d) $2 \sqrt{69}$ (e) $5 \sqrt{495}$ (f) $6 \sqrt{42}$
 (g) $8 \sqrt{804}$ (h) $9 \sqrt{279}$ (i) $7 \sqrt{749}$

2. Solve these:
- a) Divide 51 match sticks into 3 equal groups. How many are there in each group?
 - b) Share 125 pencils among 5 boys so that they have equal amounts. How many does each boy get?
 - c) Divide 246 by 4. What remains?
 - d) Share 79 sweets among 7 children. How many does each child get? How many remain?
 - e) A road 48 km long is marked off at three points equally spaced. What is the length of each part?
 - f) Share \$150 equally among 3 boys. How much does each boy receive?
 - g) 32 kg of salt is sold to 4 customers so that they received the same amount. How much salt does each get?
 - h) 92 litres of milk is distributed among 4 vendors. Each vendor received the same amount. How much milk did each get?

UNIT 22 GRAPHS

Tally Charts and Tables

Mr. Sandford is a checker with a bicycle firm.
He recorded the number of bicycles sold during the month of June.
He used Tally Marks to record his findings.

He used this key: | = 1 tally. It means 1
 |||| = 5 tallies. It means 5

This is how he presented his findings at the end of the month.

Type of bicycle	Tally
Black	
Red	
Yellow	

To read information from tally charts, we place the tallies into groups of 5.

Use Mr. Sandford's tally chart to answer these questions.

1. How many of each type of bicycle was sold in the month?
2. Which type of bicycle did most people buy?
3. How many more Yellow than Black bicycles were sold?
4. The Supervisor asked Mr. Sandford to state the number of bicycles sold in the month. What was Mr. Sandford's answer? How did you find out?

Exercise A

Read this story then study the tally chart that follows to answer the questions. The Sunshine Club held a meeting on Thursday. Each member voted for a choice of colour for the club. The Secretary recorded the votes on a tally chart like the one below.

Colour	No. of Votes
Red	
Yellow	
Black	
Green	
Blue	
Pink	

- How many colours were voted for?
- Which colour had the least number of votes?
- Which was the most popular colour?
- What is the difference between the least and the most votes.
- Which two colours had the same number of votes?
- How many members voted at the club meeting?
- Which colour do you think the members will take for the club? Why

Exercise B

- Show this information on a tally chart.
 Pets children like.
 4 children like parrots.
 10 children like birds.
 5 children like cats.
 3 children like dogs.
- The information on the tally chart, shows how the pupils of Class 2A travel to School.

Walk	
Bus	
Car	
Cycle	

Answer these questions:


- How many children — walk?....ride?
 - Which is used by more children – bus or car?
 - How many more children walk than ride?
- Have the children in your class tell their ages.
 Make a tally chart to show this.

Exercise C

- It is Divali night. The table shows the number of lighted diyas at the residences of 4 families.

Residence	Number of diyas
D. Singh	20
K. Sohan	24
L. Persaud	16
F. Ramotar	10

Show this information on a pictograph

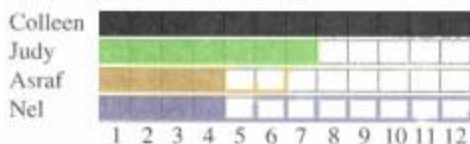
Let  represent 2 diyas.

2. Use the information in the table below to make a bar graph.

Drinks we like

Grape	Cherry	Carambola	Gauva
3	8	5	6

3. Four friends, Colleen, Judy, Asraf and Nel saved their candy wrappers. Colleen saved toffee, Judy saved chocolate, Asraf saved sour drop and Nel saved mint. Here is a graph showing the number of wrappers each saved.



Show this information on a tally chart.

Exercise D

- Some workers spent their lunch hour at Mr. Viera's snackette.
3 sat reading, 4 knitted crochet, 10 watched T.V.
5 played indoor games and 7 chatted.
Make a chart to show this information.
- Make a tally chart to show the flavours of ice cream or soft drink the children in your class like.

Tables

The pupils of Miss Jeff's Prep A class placed pictures to show the fruits they liked. Here is a pictograph

Mangoes	
Bananas	
Oranges	
Pineapples	

Miss Jeff displayed this information on a table like this:

Fruits liked	No. of children
Mangoes	6
Banannas	3
Oranges	4
Pineapples	5

Look at the table. Answer the questions.

- How many children placed pictures of fruits?
- How many children liked mangoes and oranges?
- How many more liked mangoes and oranges than bananas and pineapples?
- Which fruit is least liked in this class?

REVIEW

1. Complete these:

a) |||| = ____ tallies

c) |||| |||| |||| = ____ tallies

b) |||| |||| = ____ tallies

d) |||| | = ____ tallies

2. Count the tallies to find out the number of boys in each age group.

Age group	No. of boys
under 11	
under 12	
over 12	

3. Look at the table.

Pupil	Number of words correctly spelt
Andrew	6
Karlos	3
Colletta	10
Patricia	5
Jai	8

Answer these;

- Who spelt the most words correctly?
- How many more words did Jai spell correctly than Karlos?
- How many children were on the spelling team?

UNIT 23 ROMAN NUMERALS; ROUNDING NUMBERS

Roman Numerals to L(50)

The Romans used letters for numerals.

Remember these

One	i
Five	v
Ten	x
Fifty	L

Here are some Roman Numerals.

Read them:

i v iv iii ix vi ii viii x xi xii

Order these numerals.

Start like this:

i ii iii iv.....

What is the pattern used in from one to twelve?

Notice that:

- a) some letters are repeated in a numeral.
e.g. ii, viii, xii
- b) no letter is repeated more than three times.
e.g. iii = 3; iv = 4; viii = 8; ix = 9

Exercise A

1. What numeral is shown by each of these?
ii; xx; xxx; iii
2. The letters v and L are never repeated in a numeral. Why?
3. Write our standard numeral for each of these Roman Numerals.
vi, viii xii, Li, Liii, Lvii
vii, xi, xiii, Lii, xv, Lv

What pattern did you find?

When a **smaller** numeral is on the **right** of a bigger numeral, think of it as the **sum** of the numerals.

Yes!

$$v = 5$$

$$vi = 5 + 1 = 6$$

$$viii = 5 + 2 = 7$$

$$Lv = 50 + 5 = 55$$

4. Write the standard numeral for each of these:

iv, ix, xL

What pattern did you find?

When a **smaller** numeral is on the **left** of a bigger numeral, think of it as the **difference** between the numerals.

Yes!

$$v = 5$$

$$iv = 5 - 1 = 4$$

$$ix = 10 - 1 = 9$$

$$xL = 50 - 10 = 40$$

Exercise B

1. Arrange these numerals from:

a) smallest to largest.

b) largest to smallest.

xix,

viii,

xLviii,

xxi,

iii,

xL,

v,

x,

xxxix,

iv,

L,

xLv.

2. a) Which is the greater numeral in each pair?

L or xvi

v or iv

xv or xxv

xLv or xxx

xLi or L

xL or xvi

- b) Which is the smaller numeral in each pair?

xxi or xiv

v or iv

L or xxxix

xix or xxi

x or xL

ix or xi

3. Draw 3 clock faces.

Write all the numerals as Roman Numerals.

Show these times.

a) Five hours

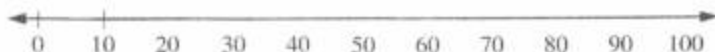
b) Seven hours thirty

c) Nine hours forty five

4. Write the answers to these in Roman Numerals:
- What is the number of your class?
 - How many persons are there in your family?
 - How many children are there in your class?
 - How many boys are in the class?
 - How many children are there in your school?
 - How old are you?
 - How old is your friend?
 - How many girls are in the class?

Rounding Numbers to the Nearest 10 and 100

1. Look at the number line:
Copy and complete.



2. Look at your number line again.
8 is between 0 and 10.
8 is nearer to 10 than to 0
So, 8 **rounded** to the nearest 10 is 10.

Numerals that are half way between, are rounded up.
So 5 rounded to the nearest ten is 10.

3. Name the numerals between 10 and 20.
Which numeral is nearest to 10?
Which numeral is nearest to 20?
4. Draw a number line.
Number is 0 to 30
Find the numeral which is half way between 0 and 10; 10 and 20; 20 and 30.
Draw a triangle around: 0; 10; 20; 30.

Exercise C

1. Use your number line to answer these:
- | | |
|------------------------------|------------------------------|
| a) Is 8 nearer to 0 or 10? | b) Is 4 nearer to 0 or 10? |
| c) Is 5 nearer to 0 or 10? | d) Is 11 nearer to 10 or 20? |
| e) Is 17 nearer to 10 or 20? | f) Is 15 nearer to 10 or 20? |
| g) Is 23 nearer to 20 or 30? | h) Is 29 nearer to 20 or 30? |

Round to the nearest 10.

68,	72,	95,	21,	16,	35
83,	54,	47,	12,	55,	7

In the same way we can round numerals to the nearest 100.
152 to the nearest 100 is 200
149 to the nearest 100 is 100

Exercise D

1. Try rounding these to the nearest 100.
- | | | | | |
|---------|------|------|------|-----|
| a) 189, | 409, | 870, | 756, | 250 |
| b) 349, | 699, | 535, | 240, | 963 |

REVIEW

1. a) Write Roman Numerals for these:

25	46	33	12
50	30	7	49

- b) Write Hindu/Arabic numerals for these:

xxiv	xi	xL	ix
L	viii	xxxi	xLix

- c) Arrange these from smallest to largest.

xLv,	xx,	iv,	L,
xxxix,	xiv,	viii,	xvi

2. a) Round these to the nearest 10:

78,	104,	21,	57,	95,	39,	40.
-----	------	-----	-----	-----	-----	-----

- b) Round to the nearest 100.

105,	175,	219,	787,	98,	350.
------	------	------	------	-----	------

UNIT 24 PERIMETER



Look at the boys measuring the distance around their schoolyard.

Now you measure your classroom, using a metre stick to measure all around the room.

Be sure to go to the edges.

How many metres did you get?

Do the same around the edge of:

- a) a room in your home.
- b) the door of your classroom
- c) a cupboard in your home.

Use a centimetre ruler to measure around the edge of your exercise book.

Again, be sure to go around from one point and return to the same point.

Peter wrote his answer like this:

one edge	15 cm
another edge	20 cm
another edge	15 cm
the last edge	20 cm
around the 4 edges	70 cm

Exercise A

1. Use your ruler.

Measure the length of the edges of:

- a) your chalk board.
- b) the wall calendar
- c) the top of your desk
- d) the cover of one of your books

Write all the answer in cm

When we measure around the edges of any object, we are finding its **perimeter**.

2. Sarika measured around the edges of a stamp in centimetres. Here is what she wrote.

A stamp has 4 edges.

1 edge	=	2 cm
the other edge	=	1 cm
the other	=	1 cm
the last	=	2 cm

The distance around the edges of this stamp is 6 cm.
She found that by adding the length of all the edges.

We can add the length of all the edges to find the perimeter.

Exercise B

1. a) Look at the top of the desk in your classroom



Can you find its perimeter?

How many edges are there in this shape?

Find its perimeter.

REVIEW

1. Measure and find the perimeter of each shape below.
Be sure to add the length of all the edges.



UNIT 25 AREA; PERIMETER; SYMMETRY LINES

Now do this.

What is Area?

To understand area, we will do some activities.

Look at the rectangle.

Cut coloured or plain paper into 1 cm squares.

You will use these to cover the space of a larger shape in your book.

It is covered with small squares, each representing a 1 cm square.

Count the number of squares.

Did you get 104 squares?

The space covered by one of these squares represent 1 cm.

The space covered by 104 squares is 104 sq cm.

The space covered is called the **AREA**.

The area of this rectangle is 104 sq cm

Area is measured in square units.



Exercise A

1. Now use your 1cm squares to cover shapes in your book.

- Draw a square of sides 8cm.
- Cover your 1cm squares.
- Count the number of squares used.
- State the area of your square.

If your area is 64 square cm, you are correct!

Draw other shapes.

Cover them in the same way.

Count and record the area of each.

Area of Irregular Shapes

Exercise B

1. Trace these irregular shapes onto your book.



Count the number of squares to find the area of each.

You must count half or more than half of a square as a whole square; but less than half of a square is not counted.

Here is another way.

Look again at the rectangle.

The squares that cover it form a pattern.

Across the rectangle there are 13 squares in a row.

Down the rectangle there are 8 such rows.

So there are 8 rows of 13 or 8×13 squares.

Each square is 1 cm

The area of the rectangle is $8 \times 13 = 104$ square cm.

This means the number of squares in a row multiplied by the number of rows of squares.

Remember

The answer to area must always be written as square units.

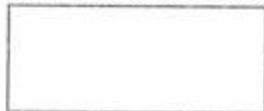
cm^2 – square centimetres

m^2 – square metres

km^2 – square kilometres

Exercise C

1. Measure and find the area of these shapes.



2. Find the area of these rooms:

- a) 10 m long and 8 m wide.
b) 15 m long and 9 m wide.

3. A rectangular table is 13 m long and 7 m wide. Find the area.
4. A race course measures 12 km by 10 km. What area does it cover?

Area and Perimeter

Your school yard probably has a fence around it.

The fence encloses the space within.

The fence encloses the area of the yard.

Have you ever walked around the fence of your school yard?

Try it.

The distance around any area is called the **perimeter**.

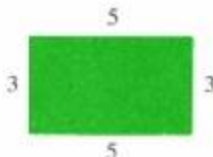
It is easy to find the perimeter of a rectangle.

The opposite sides of a rectangle are equal.

Since the perimeter of a rectangle is the sum of the length of its edges, we can say

$$2 \text{ long sides} + 2 \text{ short sides} = 5 + 5 + 3 + 3$$

$$\text{or (long side} + \text{short side)} (5 + 3) \times 2 = 16 \text{ cm}$$



Exercise D

- Find the perimeter of these rectangles:
a) 7 cm by 3 cm b) 9 cm by 5 cm c) 12 cm by 8 cm d) 14 m by 9 m
- What is the perimeter of a square room with sides measuring 9 m?
- A square field is 20m long. What is the distance all around this field?

Remember

- (i) Your answer in area must be in square units.
- (ii) Your answer for perimeter is given in units only.

Symmetry

Look at these shapes



If you were to fold on the dotted lines of each shape drawn on a piece of paper, what would you find? Does each half fit exactly on the other?

If so, we say the shapes are **symmetric**.

The dotted lines are lines of symmetry. They show the part where the shape may be so divided as to obtain parts that are symmetrical.

Exercise E

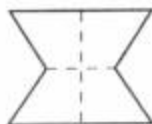
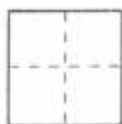
- Which of these are symmetric?



- Draw these and put in the lines of symmetry on each.



3. Some shapes have more than one line of symmetry.
How many lines of symmetry are shown on each of these shapes



Lines, Line Segments and Points

A line is a path along which an object moves.



The crow flies in straight lines



These aeroplanes fly in straight lines



Line segments are marked by **end points**.

Line segments are straight lines.

Points A and B are end points in the line segment above.

The line segment is AB.

It is written like this AB:

Exercise F

1. Which of these are line segments?



2. Name the line segments that form each of these.



a)



b)



c)



d)

Congruent Line Segments

Two line segments that are the same length are congruent.

Do you think AB is congruent to CD?



Use a piece of paper to find out.

Place the paper under AB and dot the end points.

Place the marked paper under CD to check if the end points are in the same place.

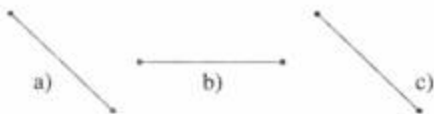
If they are, the line segments are congruent.



Exercise G

Which line segments are congruent?

Match to find out.



LET US LOOK BACK

- $4\sqrt{804}$ $7\sqrt{3296}$ $7\sqrt{265}$ $5\sqrt{350}$
- A man divided \$336 equally among his 3 sons.
How much money does each son get?
- 464 cows were put into 4 herds of equal number.
How many cows were in each herd?
- Write the numeral for each of these Roman Numerals:
xxx iv Lv xv xxxix Lvii

Problem Solving

Exercise A

1. Write statements for each problem.
Choose the right operation, then find the answer.
The first is done for you.

- a) What is the cost of one cherry?
How much would 4 mangoes cost?

1 mango costs	\$20
4 mangoes cost	$\$20 \times 4$
	$\begin{array}{r} \times 4 \\ \hline \$80 \end{array}$

- b) How many bulbs are there in one row?
How many rows are there in the box?
How many bulbs are there in the box?
How many bulbs are there in 6 such boxes?



- c) How many pairs of running shoes are there?
How many are in each pair?
How many running shoes are there?



- d) How many girls are there?
How many balloons does each girl have?
How many balloons are there?



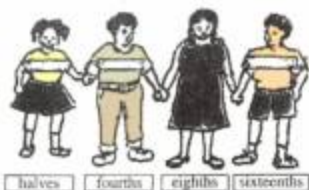
- e) There are three baskets with oranges.
One basket has 32 oranges, the other has 59 and the third has 25 oranges.
How many oranges are there in the three baskets?



2. a) Harry has 186 marbles, John has 38 more than Harry.
How many marbles has John?
- b) In a class of 62 children, 7 are absent. How many are present?
- c) Peter paid \$124 for some stamps. If each stamp costs \$4.
How many stamps did he buy?
- d) Tom read 132 pages of a book, he has 168 more pages to read.
How many pages are there in the book?
- e) In a bus there are 68 women, 15 men and 34 children.
How many persons are there altogether?
3. a) In a class of 158 children, 96 are boys.
How many are girls?
- b) Marnice bought 10 packs of cheese balls. If each pack costs \$20.
How much did she pay?
- c) Voan has 148 marbles and Marnice has 52 marbles.
How many do they have altogether?
- d) Quincy paid \$100 for some sweets. If each sweet costs \$5.
How many sweets did he buy?
4. a) \$250 was equally shared between Suzette and Saskica.
What amount of money did Suzette receive?
- b) Quincy received \$200 from his mother and \$135 from his father?
What is the total amount of money did Quincy receive?
- c) If 4 pencils cost \$200
Find the cost of one pencil?
- d) Tiffany was given a basket containing 65 oranges.
If she shares 40 with her friends, how many oranges would Tiffany now have?

Addition and Subtraction of Fractions

Look at these fraction families.



Family A



Family B



Family C

Now place these fractions in the right families A, B or C.

$$\frac{3}{8}, \frac{1}{2}, \frac{1}{4}, \frac{5}{6}, \frac{8}{12}, \frac{1}{10}, \frac{2}{9}, \frac{5}{8}, \frac{3}{6}, \frac{9}{16}, \frac{2}{5}$$

$$\frac{3}{16}, \frac{3}{4}, \frac{4}{5}, \frac{1}{3}, \frac{9}{10}, \frac{1}{9}, \frac{2}{3}, \frac{1}{12}$$

Do you remember? $\frac{3}{4} - \frac{2}{2} = \frac{6}{8}$; $\frac{6}{8} \times \frac{2}{2} = \frac{12}{16}$

Look at the denominators: Fourths, eights and sixteenths are in the same family.

Exercise B

Complete these:

1. a) $\frac{5}{8} = \frac{\square}{16}$

b) $\frac{3}{4} = \frac{\square}{8}$

c) $\frac{3}{3} = \frac{\square}{9}$

$$\frac{3}{5} = \frac{\square}{10}$$

$$\frac{1}{6} = \frac{\square}{12}$$

$$\frac{5}{6} = \frac{\square}{12}$$

$$\frac{3}{4} = \frac{\square}{16}$$

$$\frac{2}{3} = \frac{\square}{12}$$

$$\frac{1}{2} = \frac{\square}{8}$$

Remember too that $\frac{6}{6} = 1$ or six sixths = one whole

Now complete these:

$$2. \quad \frac{6}{6} = \square$$

$$1 = \frac{\square}{15}$$

$$1 = \frac{10}{\square}$$

$$\frac{10}{10} = \square$$

$$1 = \frac{\square}{12}$$

$$\frac{8}{8} = \square$$

$$1 = \frac{9}{\square}$$

When the numerator and the denominator are the same the fraction is equal to a whole.

Addition of Fractions in Families

$$\frac{3}{8} + \frac{2}{8} = \frac{3+2}{8} = \frac{5}{8}$$

Here the denominators are the same so we add the numerators and retain the denominator to get the answer.

3. Do these:

$$\frac{1}{6} + \frac{4}{6} = \square$$

$$\frac{5}{12} + \frac{3}{12} = \square$$

$$\frac{1}{5} + \frac{2}{5} = \square$$

$$\frac{5}{10} + \frac{3}{10} = \square$$

$$\frac{3}{8} + \frac{2}{8} = \square$$

$$\frac{5}{16} + \frac{3}{16} + \frac{5}{16} = \square$$

$$\frac{2}{8} + \frac{6}{8} = \frac{6}{8} = 1$$

$$\frac{7}{9} + \frac{2}{9} = \square = \square$$

$$\frac{1}{4} + \frac{3}{4} = \square = \square$$

$$\frac{5}{10} + \frac{5}{10} = \square = \square$$

When the denominators are not the same we make them the same.

$$\frac{1}{4} + \frac{5}{8} = \square$$

Here we have two different denominators – fourths and eighths.
We can make them equal by changing fourths to eighths.

$$\frac{1}{4} = \frac{2}{8}$$

$$\frac{1}{4} + \frac{5}{8} \text{ is the same as } \frac{2}{8} + \frac{5}{8}$$

$$\text{Now, } \frac{2}{8} + \frac{5}{8} = \frac{7}{8}$$

$$\text{therefore, } \frac{1}{4} + \frac{5}{8} = \frac{7}{8}$$

Here is another example, $\frac{1}{9} + \frac{2}{3}$

The denominators are not the same.
We can make them the same.

It is easier to change thirds to ninths.

$$\frac{1}{9} + \frac{2}{3} \text{ is the same as } \frac{1}{9} + \frac{6}{9}$$

Exercise C

1. Do these:

a) $\frac{1}{2} + \frac{1}{4}$

b) $\frac{3}{8} + \frac{3}{16}$

c) $\frac{3}{4} + \frac{2}{8}$

d) $\frac{1}{2} + \frac{1}{16}$

e) $\frac{3}{5} + \frac{1}{10}$

f) $\frac{3}{10} + \frac{2}{5}$

g) $\frac{7}{16} + \frac{1}{4}$

h) $\frac{2}{3} + \frac{2}{9}$

i) $\frac{7}{12} + \frac{1}{3}$

j) $\frac{5}{6} + \frac{1}{12}$

k) $\frac{4}{5} + \frac{2}{10}$

l) $\frac{1}{4} + \frac{1}{16} + \frac{2}{4}$

Look at this example:

$\frac{9}{10} + \frac{6}{10}$ Here the denominators are the same but the numerators, when added, give more than 10.

$$\text{So, } \frac{9}{10} + \frac{6}{10} = \frac{9}{10} + \frac{1}{10} + \frac{5}{10}$$

$9 + 1$ will give us 10. So, we split $\frac{6}{10}$ into $\frac{1}{10}$ and $\frac{5}{10}$

$$\frac{9}{10} + \frac{1}{10} + \frac{5}{10} = \frac{10}{10} + \frac{5}{10} = 1\frac{5}{10}$$

2. Now do these:

a) $\frac{2}{4} + \frac{2}{4}$

b) $\frac{9}{10} + \frac{8}{10}$

c) $\frac{4}{8} + \frac{5}{8}$

d) $\frac{2}{3} + \frac{2}{3}$

e) $\frac{8}{16} + \frac{11}{16}$

f) $\frac{5}{6} + \frac{4}{6}$

g) $\frac{3}{5} + \frac{4}{5}$

h) $\frac{8}{9} + \frac{5}{9}$

i) $\frac{3}{12} + \frac{10}{12}$

Here is another example $\frac{3}{4} + \frac{5}{8}$

This time the denominators are not the same.

We have to make them the same.

$$\frac{3}{4} = \frac{6}{8} \quad \text{So, } \frac{3}{4} + \frac{5}{8} \text{ is the same as } \frac{6}{8} + \frac{5}{8}$$

$$\frac{5}{8} = \frac{2}{8} + \frac{3}{8}$$

$$\frac{6}{8} + \frac{5}{8} = \frac{6}{8} + \frac{2}{8} + \frac{3}{8}$$

$$= \frac{11}{8}$$

$$= 1\frac{3}{8}$$

3. Now do these:

a) $\frac{5}{8} + \frac{3}{4}$

b) $\frac{4}{8} + \frac{9}{16}$

c) $\frac{5}{6} + \frac{1}{3}$

d) $\frac{2}{3} + \frac{4}{9}$

e) $\frac{1}{4} + \frac{7}{8}$

f) $\frac{3}{5} + \frac{7}{10}$

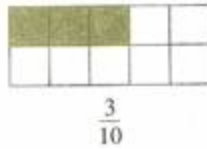
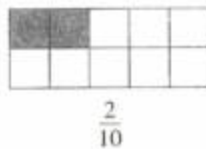
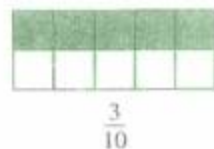
g) $\frac{9}{10} + \frac{4}{5}$

h) $\frac{5}{6} + \frac{1}{12}$

i) $\frac{1}{2} + \frac{3}{4}$

Subtract Fractions in Families

Study these:



Exercise D

Complete these:

a) $\frac{6}{10} - \frac{4}{10}$

b) $\frac{4}{5} - \frac{2}{5}$

c) $\frac{3}{5} - \frac{2}{5}$

a) $\frac{9}{10} - \frac{4}{10}$

b) $\frac{7}{10} - \frac{5}{10}$

c) $\frac{4}{5} - \frac{3}{5}$

Look at this:

$$\frac{4}{10} - \frac{1}{5}$$

Here the denominators are the same.
So, we make them the same before we subtract.

Remember $\frac{1}{5} = \frac{2}{10}$

So, $\frac{4}{10} - \frac{1}{5}$ is the same as $\frac{4}{10} - \frac{2}{10}$

So, $\frac{4}{10} - \frac{2}{10} = \frac{2}{10}$

Exercise E

Now do these:

a) $\frac{1}{2} - \frac{2}{16}$

b) $\frac{3}{8} - \frac{3}{16}$

c) $\frac{3}{4} - \frac{2}{8}$

d) $\frac{5}{3} - \frac{1}{10}$

e) $\frac{2}{5} - \frac{3}{10}$

f) $\frac{7}{16} - \frac{1}{4}$

g) $\frac{2}{3} - \frac{2}{9}$

h) $\frac{7}{12} - \frac{1}{3}$

i) $\frac{5}{6} - \frac{1}{12}$

j) $\frac{4}{5} - \frac{2}{10}$

k) $\frac{1}{4} - \frac{1}{16}$

l) $\frac{1}{2} - \frac{2}{4}$

UNIT 27 IMPROPER FRACTIONS

Look at these sets of fractions:

Set A



$$\frac{1}{2}$$



$$\frac{1}{3}$$



$$\frac{2}{4}$$



$$\frac{4}{5}$$

Set B



$$\frac{2}{2}$$



$$\frac{3}{3}$$



$$\frac{4}{4}$$



$$\frac{5}{5}$$

Set C



$$\frac{5}{4}$$



$$\frac{7}{5}$$



$$\frac{4}{3}$$

What do you notice about the three sets of fractions?

The fractions in SET B have the same numerators and denominators.

Those in SET C have numerators larger than their denominators.

A fraction with the numerator equal to or greater than the denominator, is an **improper fraction**.

Exercise A

1. Say which of these are Improper Fractions, give reasons for your answers

$$\frac{9}{7}, \frac{7}{4}, \frac{9}{9}, \frac{2}{1}, \frac{8}{8}$$

$$\frac{2}{9}, \frac{15}{4}, \frac{6}{6}, \frac{12}{9}, \frac{4}{5}$$

$$\frac{11}{12}, \frac{4}{7}, \frac{9}{2}, \frac{5}{6}, \frac{16}{2}$$

2. Write the improper fraction shown by each set of diagrams.



3. Draw diagrams and show each improper fraction.

a) $\frac{3}{2}$

b) $\frac{5}{3}$

c) $\frac{10}{4}$

d) $\frac{12}{6}$

e) $\frac{7}{3}$

Renaming Fractions

Mother baked two cakes, both same size. She cut each cake into 8 equal pieces and gave away 11 of the pieces.

Mother gave away $\frac{11}{8}$

$$\frac{11}{8} = \frac{8}{8} \text{ and } \frac{3}{8}$$

$$= 1 \text{ and } \frac{3}{8}$$

$$= 1\frac{3}{8}$$

Look at these:



$$\frac{5}{4} = \frac{4}{4} \text{ and } \frac{1}{4}$$

$$= 1\frac{1}{4}$$

$$\text{So, } \frac{5}{4} = 1\frac{1}{4}$$

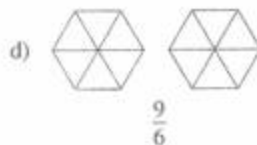
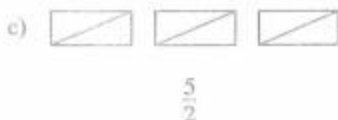
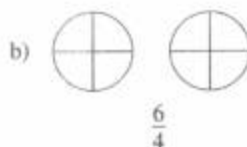
$$\frac{5}{3} = \frac{3}{3} \text{ and } \frac{2}{3}$$

$$= 1\frac{2}{3}$$

$$\text{So, } \frac{5}{3} = 1\frac{2}{3}$$

Exercise B

Copy and shade each set of diagrams to show the improper fraction written below. The first is done for you.



Look at these numbers:

$$1\frac{3}{8}, \quad 2\frac{1}{4}, \quad 1\frac{1}{2}, \quad 7\frac{2}{3}$$

Each of these numbers contains a whole number and a fraction.

Numbers like $1\frac{3}{8}$, $2\frac{1}{4}$, $1\frac{1}{2}$ and $7\frac{2}{3}$
are **MIXED NUMBERS**.

Exercise C

1. Pick out the mixed numbers from the following:

$$\frac{8}{9}, 2\frac{1}{6}, 3\frac{2}{3}, 4, 9\frac{8}{10}$$

$$5\frac{1}{7}, 14\frac{1}{2}, \frac{7}{4}, 2\frac{8}{15}, 12\frac{8}{5}$$

Study this:



$$\frac{4}{3} = 1\frac{1}{3}$$

Try changing $\frac{4}{3}$ to $1\frac{1}{3}$ without the use of the diagrams.

To write an improper fraction as a mixed number divide the numerator by the denominator.
Then write the quotient as the whole number and the remainder as a fraction with the same denominator.

2. Now write these improper fraction as mixed numbers.

a) $\frac{4}{3} =$

b) $\frac{7}{3} =$

c) $\frac{11}{2} =$

d) $\frac{12}{5} =$

e) $\frac{17}{6} =$

f) $\frac{13}{5} =$

g) $\frac{9}{6} =$

h) $\frac{18}{5} =$

i) $\frac{21}{5} =$

j) $\frac{49}{6} =$

k) $\frac{73}{9} =$

l) $\frac{85}{7} =$

3. Write these fractions as whole numbers or mixed numbers.

a) $\frac{4}{3}, \frac{4}{2}, \frac{7}{6}, \frac{11}{8}, \frac{9}{4}, \frac{11}{3}$

b) $\frac{16}{8}, \frac{13}{4}, \frac{16}{7}, \frac{30}{8}, \frac{33}{6}, \frac{15}{5}$

c) $\frac{14}{3}, \frac{20}{7}, \frac{32}{9}, \frac{30}{4}, \frac{11}{2}, \frac{27}{4}$

We can also change mixed numbers to improper fraction.

$$1\frac{2}{3} = \frac{5}{3}$$

$$\frac{3}{3} \text{ and } \frac{2}{3} = \frac{5}{3}$$

Exercise D

Shade the diagrams to show the mixed numbers, then write the mixed numbers as improper fractions. The first is done for you.



$$1\frac{1}{2} = \frac{3}{2}$$



$$1\frac{3}{4}$$



$$2\frac{1}{3}$$



$$1\frac{1}{8}$$

Study this:



$$3\frac{1}{2} = \frac{7}{2}$$

Change $3\frac{1}{2}$ to an improper fraction without the use of diagrams. Say what you did.

To change a mixed number to an improper fraction, multiply the whole number by the denominator and add the numerator, then write the answer as the numerator and retain the denominator.

Exercise E

1. Write these mixed numbers as improper fractions.

a) $3\frac{3}{4}$, $1\frac{1}{2}$, $2\frac{3}{8}$, $1\frac{7}{8}$, $1\frac{2}{8}$, $4\frac{5}{8}$

b) $2\frac{4}{8}$, $2\frac{1}{2}$, $3\frac{2}{3}$, $8\frac{1}{4}$, $1\frac{3}{8}$, $2\frac{3}{5}$

2. Add and subtract:

a) $\frac{3}{4} + \frac{1}{4}$ f) $\frac{8}{10} + \frac{5}{10}$

b) $\frac{1}{8} + \frac{3}{8}$ g) $\frac{3}{4} + \frac{1}{4}$

c) $\frac{6}{9} + \frac{1}{9}$ h) $\frac{7}{8} + \frac{3}{8}$

d) $\frac{5}{16} + \frac{1}{16}$ i) $\frac{9}{16} + \frac{5}{16}$

e) $\frac{8}{10} + \frac{1}{10}$ j) $\frac{7}{16} + \frac{3}{8}$

Add and Subtract Mixed Numerals

Look at this:



$$1\frac{1}{8} + 2\frac{1}{8}$$



$$(1 + 2 + \frac{3}{8} + \frac{1}{8})$$



$$3 \text{ and } \frac{4}{8}$$

$$= 3\frac{4}{8}$$

$$= 3\frac{1}{2}$$

Now look at this:

$$\begin{aligned}2\frac{4}{5} - 1\frac{2}{5} \\&= (2 - 1) + (\frac{4}{5} - \frac{2}{5}) \\&= 1 + \frac{2}{5} \\&= 1\frac{2}{5}\end{aligned}$$

So we write:

$$\begin{aligned}2\frac{4}{5} - 1\frac{2}{5} \\&= (2 - 1) + (\frac{4}{5} - \frac{2}{5}) \\&= 1 + \frac{2}{5} \\&= 1\frac{2}{5}\end{aligned}$$

Exercise F

Do these.

Write your answers in lowest terms:

a) $3\frac{4}{11} + 2\frac{5}{11}$

f) $12\frac{7}{16} + 5\frac{3}{16}$

b) $4\frac{7}{10} + 3\frac{3}{10}$

g) $9\frac{9}{13} + 5\frac{4}{13}$

c) $9\frac{2}{9} + 3\frac{4}{9}$

h) $11\frac{11}{20} + 3\frac{16}{20}$

d) $4\frac{2}{9} + 3\frac{5}{9}$

i) $5\frac{6}{11} + 2\frac{1}{11}$

e) $4\frac{1}{8} + 4\frac{5}{8}$

j) $5\frac{11}{12} + 5\frac{7}{12}$

Look at this:

$$5\frac{1}{4} + 2\frac{1}{2}$$

Here the denominators are not the same, so we make them the same then add.

$$\frac{1}{2} = \frac{2}{4} \quad \text{So } 5\frac{1}{4} + 2\frac{1}{2} \text{ is the same as}$$

$$\begin{aligned}&5\frac{1}{4} + 2\frac{2}{4} \\&= (5 + 2) + (\frac{1}{4} + \frac{2}{4}) \\&= 7 + \frac{3}{4} \\&= 7\frac{3}{4}\end{aligned}$$

Now look at this:

$$3\frac{7}{8} - 1\frac{3}{4}$$

The denominators are not the same so we make the same then subtract.

$$\frac{3}{4} = \frac{6}{8} \quad \text{So } 3\frac{7}{8} - 1\frac{3}{4} \text{ is the same as}$$

$$\begin{aligned} & 3\frac{7}{8} - 1\frac{6}{8} \\ &= (3 - 1) + \left(\frac{7}{8} - \frac{6}{8}\right) \\ &= 2 + \frac{1}{8} \\ &= 2\frac{1}{8} \end{aligned}$$

Exercise G

Try these.

Remember to write your answers in lowest terms.

a) $2\frac{2}{6} + 1\frac{1}{3}$

e) $2\frac{7}{8} + 1\frac{1}{4}$

b) $3\frac{1}{2} + 1\frac{1}{6}$

f) $3\frac{5}{6} + 1\frac{1}{16}$

c) $4\frac{1}{9} + 6\frac{2}{3}$

g) $4\frac{1}{2} + 2\frac{2}{9}$

d) $6\frac{2}{3} + 5\frac{1}{9}$

h) $4\frac{7}{12} + 2\frac{1}{6}$

UNIT 28 AVERAGES

Averages of 2 and 3 quantities

Kevin and Lisa were given these nuts.



Kevin took this set



Lisa was left with this set.

Lisa said, "Kevin you have more nuts than I have. Let us put the nuts together and share them so that we both have the same number of nuts."

See how they evened up their number of nuts.



How many nuts did each child get?

When we even up numbers in this way we find the average.

Jerry, Paul and Andrew caught some fish. Count the number each boy has.



This is what they did to find the average.
 Jerry said, "Let's add up 2, 4, and 3.
 That's 9.
 Since there are 3 of us, let's divide 9 by 3

$$9 \div 3 = 3$$

We can have 3 fish each."

When finding averages add all the numerals to find the sum.
 Divide the sum by the number of numerals added.
 The answer is the average.

Here is an example.
 Find the average of 9, 4 and 2.

$$15 \div 3$$

$$\begin{array}{r} 9 \\ 4 \\ + 2 \\ \hline 15 \end{array} \qquad 3 \overline{)15} \begin{array}{r} 5 \\ 15 \\ \hline 00 \end{array}$$

- a) What is the sum?
- b) How many numerals are there?
- c) What is the average?

Exercise A

1. Find the average of:

a) 4, 6

d) 7, 9

g) 1, 7

b) 12, 16

e) 35, 15

h) 6, 3, 12

c) 32, 30, 40

f) 11, 22, 33

i) 20, 32, 35

Solve these problems.

- 2. For a school fair, Lisa sold 7 tickets, Paul sold 9 tickets and Lyn sold 14 tickets. Find the average number of tickets sold by each child?
- 3. A newspaper vendor delivered 20 newspapers on Sunday, 32 on Monday and 35 on Wednesday. What is the average number of newspapers he delivered each day?
- 4. Johnny washed car wheels at a service station. The owners paid him \$240, \$400 and \$260. On the average, how much did Johnny collect for washing the wheels of each car?



5. Find the average mass of the three bags.
6. Measure the heights of 3 of your friends. Find their average height.
7. 45 coconuts were picked from one coconut tree and 23 from another. Find the average number of coconuts picked from the trees.
8. In a test Patty's scores were 32, 25, and 18. What was her average score?
9. In 2 innings the school team scored 126 and 52 runs. What was the average score?

REVIEW

1. Find the average of:
 - a) \$42, \$102 and \$60
 - b) 54 and 46
 - c) 24 kg and 72 kg
2. Mr. Singh purchased 34 litres of petrol in May and 26 litres in June. On the average how many litres did he buy each month?
3. A fisherman's sale for three days are \$2225, \$1500 and \$3150. Find his average sale in the three days.
4. The attendance in Class Four for three days were: 43, 45 and 44. Find the average attendance of this class in the three days.

UNIT 29 POINT GRAPH



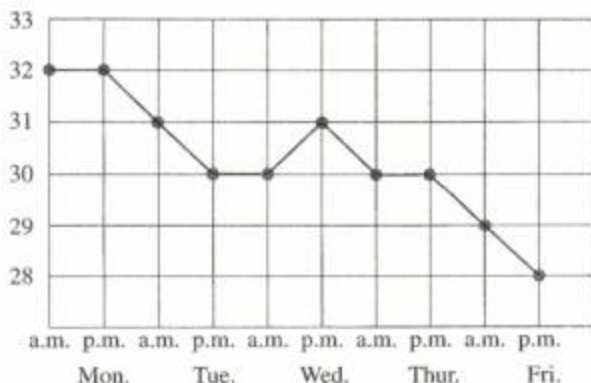
Jane became ill. She was taken to the hospital where she stayed for 6 days. Everyday a nurse took her temperature and recorded it on a chart. The chart looked like this.

- a) Each dot (point) shows the temperature reading for the day.
- b) The lines that join the dots show when the temperature went up, down or remained the same.



Exercise A

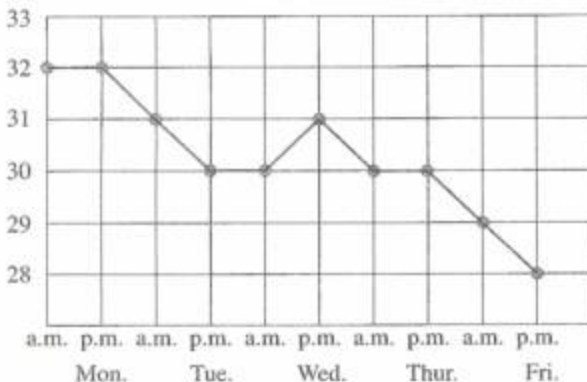
1. This chart shows the reading of Mrs. Cameron's baby temperature for a week.



Let us try to read the baby's temperature for each day of the week.

Answer these questions.

1.
 - a) On which day was the baby's temperature the lowest?
 - b) On which days did the reading show 20 degrees?
 - c) On which days did the reading show 30 degrees?
2. Make a chart like the one showing the baby's temperature. This time use the marks you scored in Spelling in one week.
3. This graph shows the attendance at school of the pupils of Class 4.



Now answer these:

- a) What was the attendance on Tuesday morning?
- b) Was the attendance the same for Tuesday afternoon?
- c) How many children more/less were present on Wednesday morning than on Tuesday afternoon?
- d) On which days was the attendance the same for both morning and afternoon?
- e) On which day did the least number of pupils attend school?
- f) What was the average attendance for the week?

REVIEW

1. Use the information given below to construct a point graph.
A storekeeper sold a number of gents shirts for a period of 6 months.
In January he sold 25 shirts. In February he sold 5 shirts less than in January.
In March he sold 10 more than those he sold in January. During the month of April 40 shirts were sold while in May he sold the same amount as in March and in June he sold 49 shirts.
Now answer these:
 - a) In which month did he sell:
 - i) the most shirts?
 - ii) the least shirts?
 - b) In which months did he sell the same number of shirts?
 - c) What was the average number of shirts sold in the six-month period?

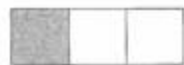
UNIT 30 FRACTIONS; SUBSETS

Addition — The Commutative Property

Use blocks or strips of paper to build these.



1. $\frac{2}{3} + \frac{1}{3} = \frac{3}{3}$



2. $\frac{1}{3} + \frac{2}{3} = \frac{3}{3}$



3. $\frac{2}{3} + \frac{1}{3} = \frac{1}{3} + \frac{2}{3}$

Read $\frac{2}{3} + \frac{1}{3} = \frac{1}{3} + \frac{2}{3}$

The order in which the fractions are added does not change the answer.

Exercise A

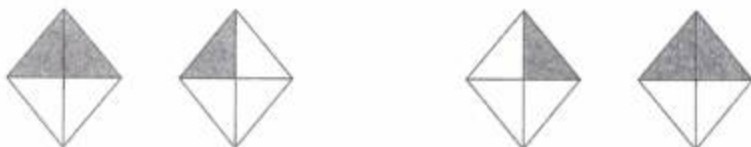
1. Now do these:

a)



$$\frac{1}{4} + \frac{3}{4} = \underline{\quad} + \underline{\quad}$$

b)



$$\frac{1}{2} + \frac{1}{4} =$$

$$\frac{1}{4} + \frac{1}{2}$$

2. Copy and complete:

a) $\frac{1}{5} + \frac{2}{5} = \frac{2}{5} + \square$

b) $\frac{3}{8} + \frac{1}{8} = \frac{1}{8} + \square$

c) $\frac{4}{9} + \frac{2}{9} = \frac{2}{9} + \square$

3. State which is true or false:

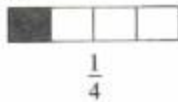
a) $\frac{1}{3} + \frac{2}{3} = \frac{2}{3} + \frac{1}{3}$

b) $\frac{2}{6} + \frac{3}{6} = \frac{3}{6} + \frac{2}{6}$

c) $\frac{3}{5} + \frac{2}{5} = \frac{2}{5} + \frac{3}{5}$

Addition — The Associate Property

Use your blocks or strips of paper again to show these:



Number the strips $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$.

Place them on your desk so that they read:

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{4} \text{ or } \left(\frac{1}{2} + \frac{1}{3}\right) + \frac{1}{4}$$

or $\frac{1}{2} + \left(\frac{1}{3} + \frac{1}{4}\right)$

Can you find another way?

Now show $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$

Make three addition statements like the example above.

In adding three or more fractions the order in which you group them does not change the answer.

Exercise B

Now do these:

1. a) $\frac{1}{2} + \frac{1}{4} + \frac{1}{5} = \frac{1}{2} + \left(- + -\right)$

b) $\frac{1}{3} + \frac{1}{4} + \frac{1}{6} = \left(\frac{1}{3} + \frac{1}{4}\right) + -$

c) $\frac{2}{8} + \frac{1}{8} + \frac{1}{6} = \left(- + -\right) + \frac{2}{8}$

2. Copy and complete:

a) $\left(\frac{2}{5} + \frac{1}{5}\right) + \frac{3}{5} = \frac{2}{5} + (- + -)$

b) $\frac{1}{8} + \left(\frac{1}{3} + \frac{1}{4}\right) = \left(\frac{1}{8} + \frac{1}{3}\right) + -$

c) $\frac{1}{12} + \frac{4}{9} + \frac{5}{6} = \frac{4}{9} + (- + -)$

3. State which is true or false.

a) $\left(\frac{2}{5} + \frac{1}{5}\right) + \frac{4}{5} = \frac{2}{5} + \left(\frac{1}{5} + \frac{4}{5}\right)$

b) $\left(\frac{2}{3} + \frac{1}{3}\right) + \frac{4}{4} > \frac{1}{3} + \left(\frac{2}{3} + \frac{1}{4}\right)$

c) $\frac{1}{4} + \left(\frac{1}{8} + \frac{2}{7}\right) < \frac{2}{7} + \left(\frac{1}{8} + \frac{1}{2}\right)$

Repeated Addition

Look at these:



$$4 \times \frac{1}{2} = \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$$



$$\begin{aligned} 3 \times \frac{1}{4} &= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} \\ &= 3 \times \frac{1}{4} = \frac{3}{4} \end{aligned}$$

To multiply a fraction by a whole number,
add the fraction as many times as the whole
number suggests.

Exercise C

Do these:

1. Write each as a multiplication.

The first is done for you.

a) $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 3 \times \frac{1}{3}$

b) $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} =$

c) $\frac{3}{10} + \frac{3}{10} =$

d) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$

a) $\frac{2}{8} + \frac{2}{8} + \frac{2}{8} =$

b) $\frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7} =$

2. Write each as an addition.

The first is done for you.

a) $3 \times \frac{1}{2} = \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

b) $4 \times \frac{1}{2} =$

c) $6 \times \frac{1}{8} =$

d) $2 \times \frac{1}{4} =$

e) $2 \times \frac{2}{10} =$

f) $5 \times \frac{1}{5} =$

Subsets



This set has 6 members.

Each part of a set is called a **subset**.

One subset has 2 members.

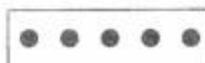
How many members are there in the other subset?

Exercise D

1. Partition to show subsets.

Copy and draw a line to show:

- a) One subset has 4 members.



- b) One subset has 6 members.



2. How many subsets are there in each set?

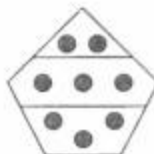
a)



b)



c)



REVIEW

1. Copy and complete:

a) $\frac{3}{5} + \frac{2}{5} = \frac{2}{5} + \frac{\square}{\square}$

b) $\frac{7}{9} + \frac{2}{3} = \frac{2}{3} + \frac{\square}{\square}$

c) $\frac{1}{6} + \frac{2}{6} = \frac{\square}{\square} + \frac{\square}{\square}$

d) $\frac{2}{7} + \frac{1}{6} + \frac{1}{2} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{1}{6}$

e) $\frac{1}{3} + \frac{1}{4} + \frac{2}{5} = \frac{1}{4} + \frac{\square}{\square} + \frac{\square}{\square}$

2. Write each as a multiplication problem.

a) $2 \times \frac{2}{3}$

b) $\frac{3}{4} \times 3$

3. Partition into subsets.

- a) One subset has 1 member.



- b) One subset has 5 members



LET US LOOK BACK

1. A basket contains 246 eggs. How many eggs will 8 such baskets contain?

2. Complete these:

a) $\frac{4}{7} + \frac{2}{7}$

b) $\frac{3}{8} - \frac{1}{8}$

c) $\frac{5}{16} - \frac{1}{16}$

d) $\frac{4}{5} + \frac{1}{10}$

e) $\frac{3}{4} - \frac{1}{8}$

f) $\frac{3}{6} - \frac{1}{12}$

3. Change to improper fractions:

a) $2\frac{1}{2}$

b) $3\frac{1}{3}$

c) $4\frac{2}{3}$

d) $5\frac{3}{8}$

4. Change to mixed numerals:

a) $\frac{11}{3}$

b) $\frac{10}{8}$

c) $\frac{11}{2}$

d) $\frac{33}{4}$

5. a) $3\frac{2}{3} + 1\frac{1}{3}$

b) $5\frac{10}{12} - 3\frac{4}{12}$

6. a) $\frac{1}{2} + 1\frac{1}{4}$

b) $6\frac{3}{4} + 1\frac{1}{4}$

7. a) $3\frac{1}{4} - \frac{5}{8}$

b) $3\frac{1}{4} - 2\frac{1}{8}$

8. John scored 15, 12 and 6 runs in three matches.
What was his average score in three matches?

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