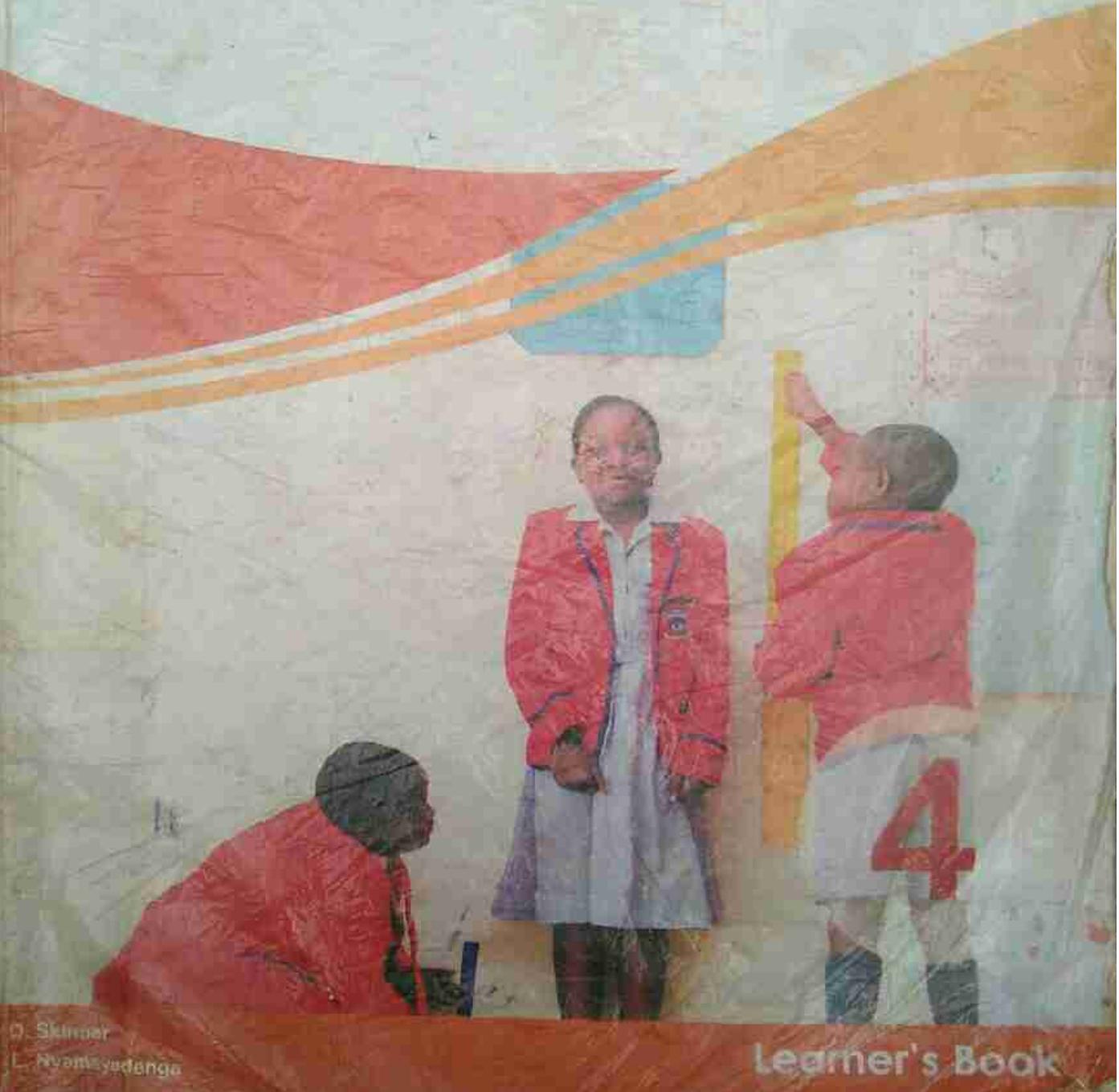


New Curriculum

Ventures Primary Mathematics



D. Skinner
L. Nkambule-deng'o

Learner's Book

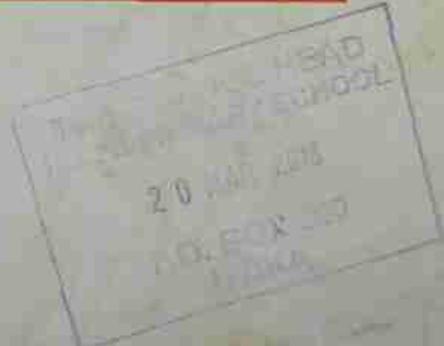
Ventures Primary Mathematics

Learner's Book Grade

4



college press



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Unit 1

Thousands, hundreds, tens and units

Objectives

You should be able to:

1. identify, read and write numbers in numerals and words in the range
2. tell positions of objects in a row
3. arrange sets of numbers in order
4. use abacuses to represent numbers
5. draw abacuses to show number
6. write whole numbers in expanded notation.

Flashback

Say the following numbers to a friend. 13, 54, 125, 733.



Key words

thousand

position

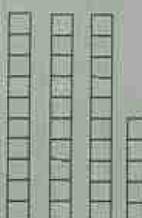
row

Numbers

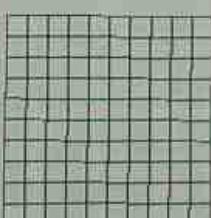
Numbers can be shown as pictures, words and numerals.

Example

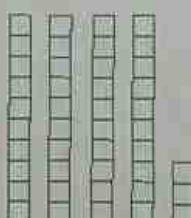
What is the number for the following pictures? Write them in numerals then words.



= 35
= Thirty five



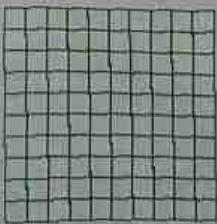
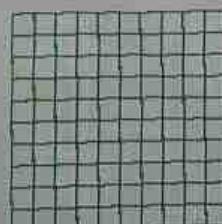
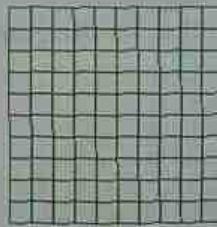
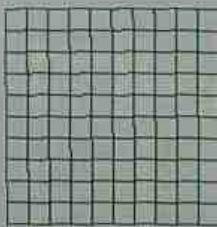
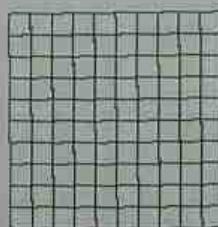
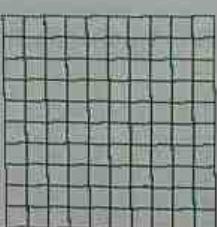
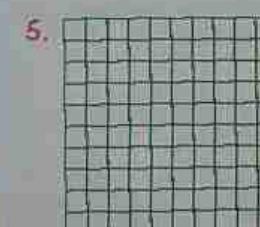
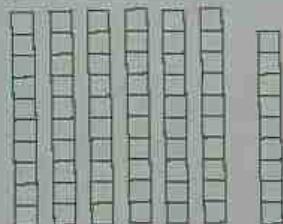
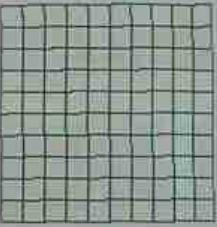
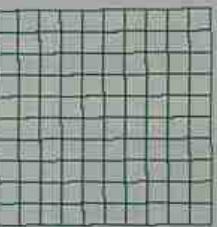
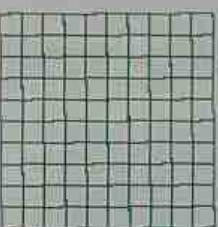
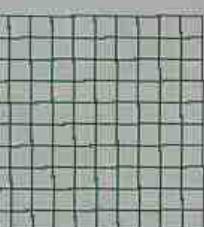
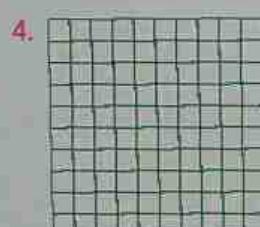
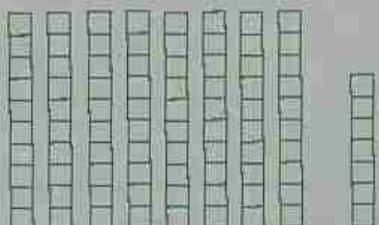
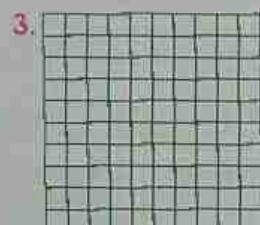
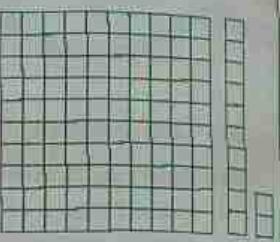
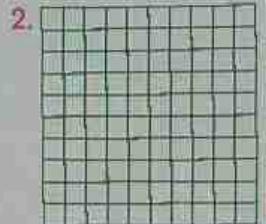
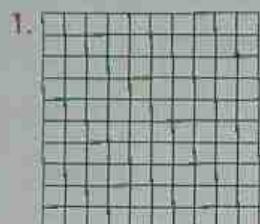
= 140
= One hundred and forty three



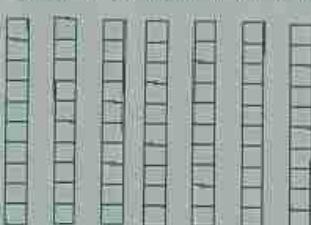
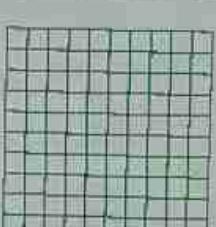
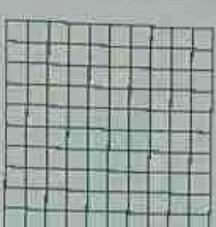
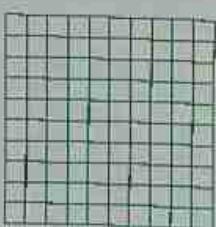
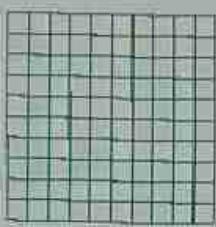
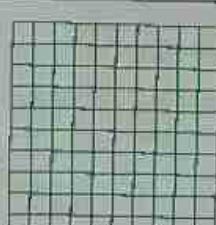
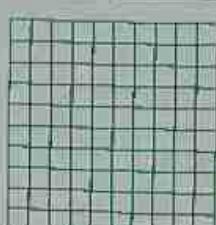
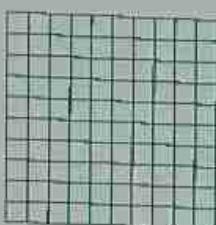
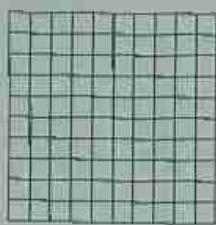
= 548 = Five hundred and forty eight.

Practice exercise 1

Write the number for these pictures a) in numerals b) in words.



6.



Write the following in numerals.

7. Six hundred and twenty-nine.
8. Three hundred and five.
9. Four hundred and ninety-one.
10. Two hundred and sixty-six.
11. Seven hundred and thirty.
12. Nine hundred.

Ordinal numbers

We use ordinal numbers to show position of objects in a row.

Ordinal numbers can be shown in numerals and words.

1st – first	2nd – second
5th – fifth	6th – sixth
9th – ninth	10th – tenth
13th – thirteenth	14th – fourteenth
17th – seventeenth	18th – eighteenth
21st – twenty-first	22nd – twenty-second
30th – thirtieth	40th – fortieth
70th – seventieth	80th – eightieth

3rd – third	4th – fourth
7th – seventh	8th – eighth
11th – eleventh	12th – twelfth
15th – fifteenth	16th – sixteenth
19th – nineteenth	20th – twentieth
23rd – twenty-third	24th – twenty-fourth
50th – fiftieth	60th – sixtieth
90th – ninetieth	100th – hundredth

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Practice exercise 2

Write the following ordinal numbers in words.

1. 14th 2. 43rd 3. 72nd 4. 57th 5. 63rd
6. 45th 7. 75th 8. 86th 9. 98th

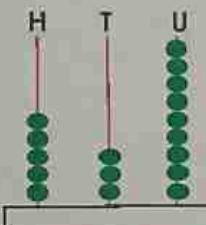
Write the following ordinal numbers in numerals.

10. hundredth
11. twenty third
12. fortieth

Abacus

Example

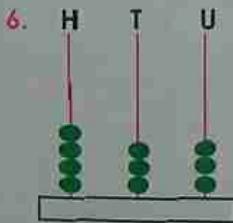
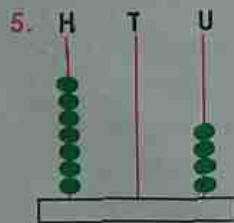
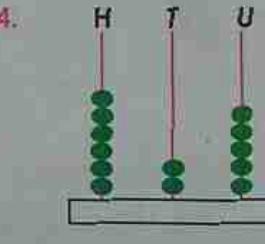
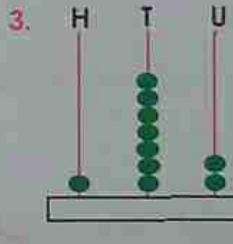
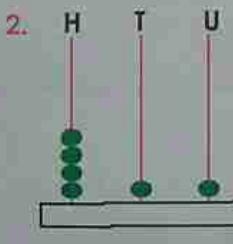
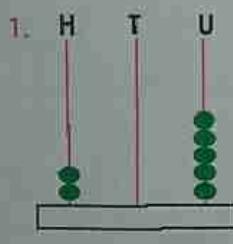
Write the number shown by the abacus.



9 Counters are unit column.
3 Counters are in the ten column.
5 Counters are in the hundred column.
The number shown is 539.

Practice exercise 3

Write the numbers shown by the abacus below.



Draw abacuses to show the following numbers.

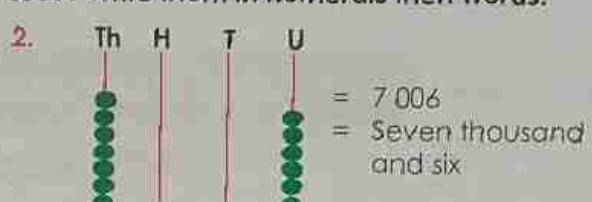
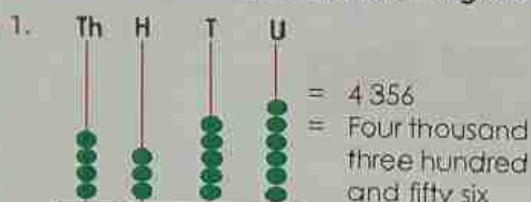
7. 741
8. 430
9. 163
10. 500
11. 424
12. 128

Thousand

Numbers can be shown as pictures and numerals.

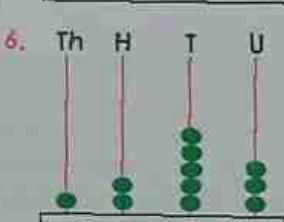
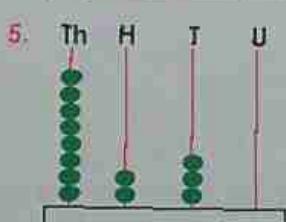
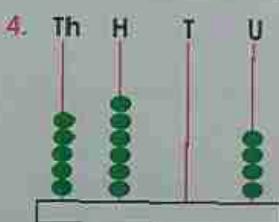
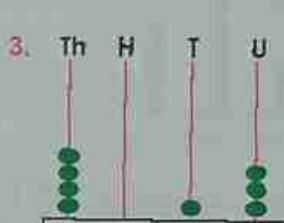
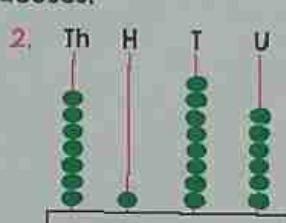
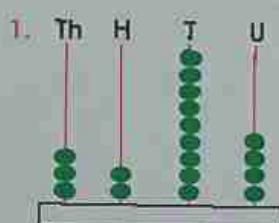
Example

What is the number for the following abacuses? Write them in numerals then words.



Practice exercise 4

Write the number shown by abacuses.



Write the following words in numerals.

7. One thousand three hundred and fourteen.
8. Seven thousand six hundred and fifty-two.
9. Nine thousand and twenty-four.
10. Two thousand and nine.
11. Eight thousand three hundred and ninety-nine.
12. Three thousand and forty-one.

Expanding numbers

Example

Look at this number: 8 592

To show the value of each digit we can write.

$$8\ 592 = 8\ 000 + 500 + 90 + 2$$

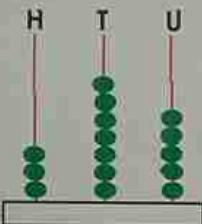
Practice exercise 5

Show the value of digits in these numbers in the same way.

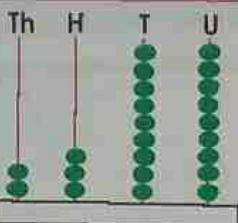
- | | | | | | |
|----------|----------|----------|-----------|-----------|-----------|
| 1. 3 427 | 2. 5 619 | 3. 4 538 | 4. 6 721 | 5. 2 316 | 6. 4 508 |
| 7. 4 343 | 8. 6 006 | 9. 7 035 | 10. 9 750 | 11. 8 299 | 12. 5 112 |

End of unit assessment

Multiple choice

1. Nine hundred and six in numerals is _____.
A. 96 B. 106 C. 609 D. 906
2.  What is the number shown in the picture?
A. 350 B. 375 C. 400 D. 450
3. $9\ 859 = 9000 + 800 + \square + 9$
A. 5 B. 50 C. 80 D. 90
4. Write 1 008 in words.
A. one hundred and eight
B. one thousand eight hundred
C. one thousand and eighty
D. one thousand and eight
5. In an athletics race, I sprinted past the athlete on the 3rd position. Which position am I now?
A. 2nd B. 1st C. 3rd D. 5th
6. $2000 + 500 + 10 + 9 = \square$
A. 5 219 B. 2 519 C. 5 192 D. 2 000
7. Round off 87 to the nearest 10.
A. 8 B. 9 C. 80 D. 90
8. 12th in words.
A. twenty B. one-two C. twelfth D. twelve
9. 7587 in words is _____.
A. Five thousand five hundred and eighty-seven
B. Eight thousand five hundred and eighty-seven
C. Seven thousand eight hundred and fifty-seven
D. Seven thousand five hundred and eighty-seven

10.



What is the number shown in the picture?

- A. 2 385 B. 2390

- C. 2 399

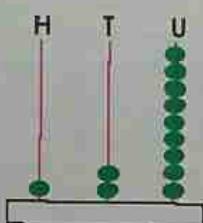
- D. 20 390

[10 marks]

Structured questions

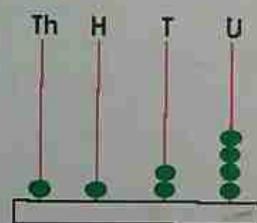
11. Write the number shown on the following pictures in a) numerals b) words.

a)



[2]

b)



[2]

12. Draw abacuses that show:

- a) 345 b) 1 787

- c) 8 144

13. Write the following number in expanded form.

- a) 1 405 b) 8 750

- c) 2 515

[3]

[3]

Unit 2

More thousands

Objectives

You should be able to:

1. compare any two numbers using comparison signs ($<$, $>$, $=$)
2. arrange numbers in order of size
3. estimate quantities of objects.

Flashback

You have learnt about place values in the previous unit and this time you are expected to compare the values of numbers.



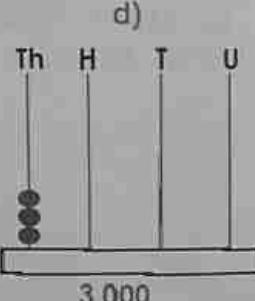
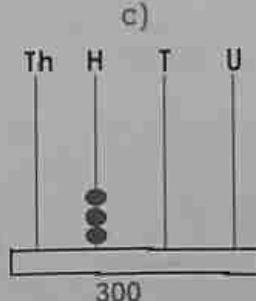
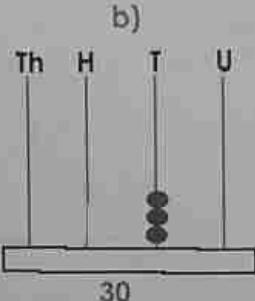
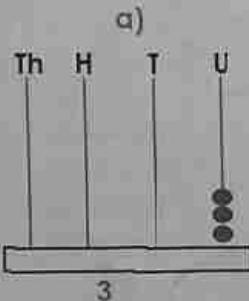
Key words

ascending descending estimation

Place value

Example

1. Look at the four pictures. What is the value of each picture?



2. Look at this number: 7 059. What is the value of the underlined digit?
The value of the 5 is 50.

Practice exercise 1

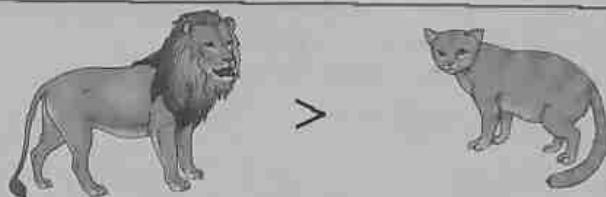
Write the value of the underlined digits.

- | | | | |
|-------------------|--------------------|--------------------|--------------------|
| 1. 4 6 <u>5</u> 0 | 2. 8 9 <u>0</u> 6 | 3. 7 0 <u>0</u> 4 | 4. 4 3 <u>0</u> 1 |
| 5. 9 0 <u>0</u> 8 | 6. 3 <u>2</u> 04 | 7. 9 0 <u>4</u> 3 | 8. 2 9 <u>4</u> 4 |
| 9. 7 3 <u>0</u> 1 | 10. 9 2 <u>5</u> 3 | 11. 5 2 <u>1</u> 4 | 12. 2 1 <u>4</u> 5 |

Comparing numbers

Example

This sign $>$ means greater than.



This sign $<$ means less than.



Practice exercise 2

Fill in using: greater or less.

1. $4\ 362 > 1\ 307$ means 4362 is _____ than 1307
2. $6\ 001 < 8\ 004$ means 6001 is _____ than 8004

Fill in the $>$ or $<$ sign.

3. $7\ 000 \square 700$
4. $6\ 219 \square 5\ 219$
5. $6\ 213 \square 6\ 312$
6. $103 \square 1\ 003$
7. $2\ 999 \square 3\ 000$
8. $5\ 412 \square 5\ 402$
9. $9\ 304 \square 9\ 204$
10. $8\ 000 \square 8\ 001$

Number order

Look at the numbers below.

They are arranged in ascending order this means from smallest to greatest.

4 302 4 308 4 311 4 312

These numbers are arranged in descending order this means from the greatest to the smallest.

9 379 8 379 7 379 6 379

Practice exercise 3

Arrange these numbers from smallest to the greatest.

1. 60 6 000 600 6
2. 3 500 3 100 3 700 3 300
3. 7 124 7 134 7 144 7 114
4. 9 006 9 008 9 001 9 003
5. 2 513 3 513 513 7 513

Arrange these numbers from greatest to smallest.

6. 80 800 8 8000
7. 7 400 7 600 8 000 7 800
8. 4 321 4 331 4 351 4 341
9. 5 000 4 999 5 001 4 998
10. 3 560 3 506 3 056 356

Estimating quantities

Example 1

A packet of biscuits costs 43 cents. If mother wanted 5 how much money would she need to buy 5?

Spiwe says \$5

$$43c \times 5 = \$2.15$$

Kuda says \$2.50



Kuda gave a more accurate estimate than Spiwe.

Estimation is finding a number close enough to the correct answer.

Example 2

There are 43 learners in the red class and 45 learners in the blue class. How many children are in the two classes?

Solution

$40 + 50 = 90$. An estimate would be 90.

Practice exercise 4

Answer the following.

1. A television set costs \$370.56 in one shop and \$307.65 in another. Estimate the amount saved by buying in the second shop?
2. A learner wrote down 539.76 instead of 537.96. Estimate by how much was his answer wrong?
3. Estimate the difference between 987 and 678.
4. Estimate the change Lawrence gets from \$10.00 after buying goods for \$7.95 from Molai supermarket.
5. Keith bought a cricket bat for \$15.95 and a ball for \$1.05. Estimate how much change had he left out of \$20.00.
6. Ten trucks have a load of 960 kg each. Estimate the total load of the trucks.
7. Estimate $706\text{m} \times 4$.
8. Estimate $803\text{litres} \times 5$.
9. Estimate 800m divided by 5.
10. A soccer team has eleven players. There are 132 learners at Gunde school. Estimate the number of soccer teams which can be formed at this school.
11. Kudzai earned \$275. From this amount, \$65.20 was deducted for taxes, and \$18.30 for insurance. Estimate Kudzai's pay after deductions.
12. There are 550 learners at Hartley primary school. If $\frac{3}{5}$ of the learners eat lunch at school, estimate the number of learners who eat lunch at school.

Practice exercise 5

1. Look at this row of numbers. What is the difference between each number and the next?

8 117 8 118 8 119 8 120 8 121

2. Fill in the missing number.

8 299 8 301 8 302 8 303

3. Look at this row of numbers. What is the difference between each number and the next?

2 370 2 380 2 390 2 400 2 410

4. Fill in the missing number.

7 890 7 910 7 920 7 930

5. Look at this row of numbers. What is the difference between each number and the next?

1 342 1 442 1 542 1 642 1 742

Fill in the missing numbers.

6. 3 204 3 304 3 504 3 604

7. 8 811 8 911 9 011 9 211

8. What is the difference between each number and the next?

3 746 4 746 5 746 6 746 7 746

Fill in the missing numbers.

9. 401 1 401 2 401 3 401

10. 1 100 2 200 3 300 5 500

End of unit assessment

Multiple choice

1. What is the value of 8 in 5 802?
A. 8 B. 80 C. 800 D. 8 000
2. In 9 786 which digit has the value of hundreds?
A. 6 B. 7 C. 8 D. 9
3. Write Seven hundred and six in numerals.
A. 607 B. 706 C. 760 D. 7 006
4. Fill in the missing numbers: 300 400 600 700
A. 100 B. 200 C. 500 D. 600
5. Fill in the missing numbers: 557 657 857 957
A. 100 B. 457 C. 557 D. 757
6. Write nine hundred and three in numerals:
A. 93 B. 309 C. 903 D. 9 003
7. Five hundred and fifty one in numerals is _____.
A. 51 B. 501 C. 511 D. 5 001
8. 366 in words is _____.
A. three hundred and six
B. three and sixty-six

- C. three hundred and sixty
D. three hundred and sixty – six
9. 404 in words is _____.
A. forty four
B. four hundred four
C. four hundred and four
D. four hundred and forty
10. 709 to the nearest thousand is _____.
A. 10 B. 100 C. 700 D. 1 000 [10 marks]

Structured questions

11. Look at this number: 2 906
a) What the value 6? b) What is the value 2? [2]
12. Fill in the missing number: 350 450 □ 650. [1]
13. Draw an abacus and show 4 023. [1]
14. Fill in the > , < or = sign 9 006 □ 906 [1]
15. Write these numbers in ascending order:
a) 399 899 908 109.
b) 143 745 215 333 [2]
16. Write these numbers in descending order:
a) 909 508 705 203.
b) 225 250 275 300 [2]
17. Grade 4 learners at Robert Mugabe Junior school wrote a mathematics test marked out of 100. Who got the lowest marks? Takunda: 98 Siphosami: 89 Patricia: 71 Rutendo: 91 [1]

Unit 3

Rounding off whole numbers

Objectives

You should be able to:

1. round off to the nearest ten
2. round off to the nearest hundred
3. round off to the nearest thousand.

Flashback

You have learnt about estimation in the previous unit and this time you are expected to estimate numbers by rounding off.



Key words

digit

place holder

round off

The number line

Example

Show 1 250 on a number line.



Practice exercise 1

Show these numbers in the same way.

- | | | | | |
|----------|----------|----------|----------|-----------|
| 1. 980 | 2. 1 750 | 3. 1 980 | 4. 1 340 | 5. 1 025 |
| 6. 1 596 | 7. 1 439 | 8. 1 672 | 9. 1 121 | 10. 1 873 |

Rounding off to the nearest ten

Example

Find 24 and 27 to the nearest ten.



24 is nearer to 20 than 30. Rounded off to the nearest ten it is 20.

27 is nearer to 30. Rounded off to the nearest ten it is 30. The middle number is always rounded off to the higher number. 25 is rounded off to 30.

Practice exercise 2



Use the number line. Round off these numbers to the nearest ten.

1. 71
2. 78
3. 75
4. 74
5. 77

Round off these numbers to the nearest ten.

6. 42
7. 89
8. 54
9. 78
10. 65

Rounding off to the nearest 100

Example

1. 340 to the nearest 100.
2. 365 to the nearest 100.

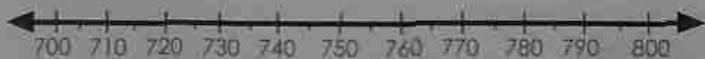


340 is nearer to 300 than 400. Rounded off to the nearest hundred is 300.

365 is nearer to 400. Rounded off to the nearest hundred is 400.

The middle number is always rounded off to the higher number. 350 is rounded off to 400.

Practice exercise 3



Use the number line. Round off these numbers to the nearest hundred.

1. 799
2. 703
3. 742
4. 781
5. 750

Round these numbers off to the nearest hundred.

6. 902
7. 675
8. 421
9. 539
10. 109

Rounding off to the nearest 1 000

Example

1. Round off 5 225 to the nearest 1 000.
2. Round off 5 845 to the nearest 1 000.



5 225 is nearer to 5 000 than 6 000. Rounded off to the nearest thousand it is 5 000.
5 842 is nearer to 6 000. Rounded off to the nearest thousand it is 6 000. The middle number is always rounded off to the higher number. 5 500 is rounded off to 6 000.

Practice exercise 4



Use the number line. Round off these numbers to the nearest hundred.

1. 6 010
2. 6 341
3. 6 787
4. 6 500
5. 6 590

Round off these numbers to the nearest thousand.

6. 7 301
7. 8 952
8. 1 287
9. 2 500
10. 5 435

11. The chart shows a census taken by Mr Shumba of the number of people living in small towns in Zimbabwe. Round off the number of people to the nearest thousand.

Town	People	Nearest thousand
a) Chakari	5 100	
b) Nyazura	1 760	
c) Mhangura	7 750	
d) Rusape	5 290	
e) Mvuma	1 520	

Practice exercise 5

Round off the following numbers to the nearest a) ten b) hundred c) thousand.

- | | | | | |
|----------|----------|----------|----------|-----------|
| 1. 3 983 | 2. 1 757 | 3. 3 989 | 4. 1 345 | 5. 5 025 |
| 6. 1 596 | 7. 1 439 | 8. 1 672 | 9. 1 121 | 10. 1 873 |

End of unit assessment

Multiple choice

1. Round off 87 to the nearest 10.
A. 8 B. 9 C. 80 D. 90
2. Round off 109 to the nearest 100.
A. 1 B. 10 C. 100 D. 110
3. Round off 7 587 to the nearest thousand
A. 80 B. 500 C. 7 000 D. 8 000
4. 709 to the nearest thousand is _____.
A. 10 B. 100 C. 700 D. 1 000
5. 8 099 to the nearest thousand is _____.
A. 80 B. 800 C. 810 D. 8 000
6. 9 909 to the nearest hundred is _____.
A. 90 B. 900 C. 990 D. 9 900
7. 750ml to the nearest litre is _____.
A. 1 B. 70 C. 75 D. 750
8. 9 075 to the nearest 10 is _____.
A. 80 B. 90 C. 910 D. 9080
9. 5 568 to the nearest 100 is _____.
A. 557 B. 5560 C. 5600 D. 6000
10. 7759 to the nearest 1 000 is _____.
A. 776 B. 780 C. 886 D. 8000

[10 marks]

Structured questions

1. Round off 9 089 to the nearest hundred. [2]
2. Round off 299 to the nearest 10. [2]
3. 1.895 to the nearest unit. [2]
4. 203.75 to the nearest 100. [2]
5. 7 999 to the nearest 1 000. [2]

Unit 4

Addition of whole numbers

Objectives

You should be able to:

1. add within the range, including carrying up to three times
2. add measures.

Flashback

What is addition?

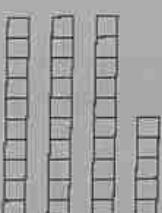
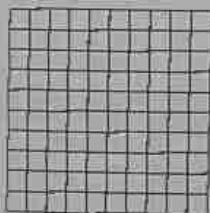


Key words

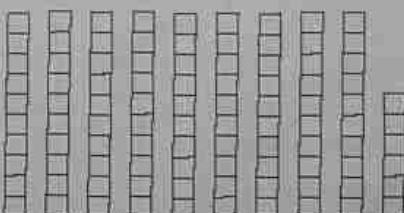
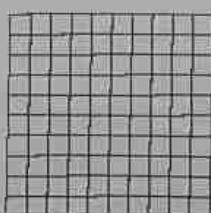
sum total altogether

Adding hundreds

Example 1



+



We write

$$135 + 196 =$$

	H	T	D
1	1	3	5
+	1	9	6
	3	3	1

Example 2

$$454 + 568 =$$

		4	5	4
+		5	6	8
	1	0	2	2

Practice exercise 1

Do these. Fill in the missing numbers.

$$\begin{array}{r} \text{1. } \quad \quad \quad \quad \\ \boxed{3} \quad 3 \quad 2 \\ + \quad 1 \quad 2 \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{2. } \quad \quad \quad \quad \\ \boxed{4} \quad 7 \quad 7 \\ + \quad 2 \quad 1 \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{3. } \quad \quad \quad \quad \\ \boxed{7} \quad 8 \quad 6 \\ + \quad 1 \quad 0 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{4. } \quad \quad \quad \quad \\ \boxed{5} \quad 9 \quad 0 \\ + \quad 1 \quad 8 \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{5. } \quad \quad \quad \quad \\ \boxed{3} \quad 8 \quad 2 \\ + \quad 2 \quad 6 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{6. } \quad \quad \quad \quad \\ \boxed{7} \quad 4 \quad 2 \\ + \quad 5 \quad 2 \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{7. } \quad \quad \quad \quad \\ \boxed{4} \quad 9 \quad 7 \\ + \quad 2 \quad 0 \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{8. } \quad \quad \quad \quad \\ \boxed{5} \quad 0 \quad 4 \\ + \quad 3 \quad 7 \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{9. } \quad \quad \quad \quad \\ \boxed{6} \quad 0 \quad 0 \\ + \quad 3 \quad 9 \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{10. } \quad \quad \quad \quad \\ \boxed{4} \quad 0 \quad 7 \\ + \quad 5 \quad 0 \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{11. } \quad \quad \quad \quad \\ \boxed{3} \quad 5 \quad 2 \\ + \quad 4 \quad 5 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{12. } \quad \quad \quad \quad \\ \boxed{6} \quad 0 \quad 8 \\ + \quad 3 \quad 1 \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{13. } \quad \quad \quad \quad \\ \boxed{6} \quad 2 \quad 6 \\ + \quad 2 \quad 6 \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{14. } \quad \quad \quad \quad \\ \boxed{5} \quad 7 \quad 7 \\ + \quad 4 \quad 0 \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{15. } \quad \quad \quad \quad \\ \boxed{7} \quad 5 \quad 7 \\ + \quad 2 \quad 1 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{16. } \quad \quad \quad \quad \\ \boxed{6} \quad 6 \quad 7 \\ + \quad 2 \quad 3 \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{17. } \quad \quad \quad \quad \\ \boxed{5} \quad 9 \quad 7 \\ + \quad 2 \quad 2 \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{18. } \quad \quad \quad \quad \\ \boxed{5} \quad 8 \quad 6 \\ + \quad 3 \quad 1 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{19. } \quad \quad \quad \quad \\ \boxed{5} \quad 4 \quad 8 \\ + \quad 2 \quad 9 \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{20. } \quad \quad \quad \quad \\ \boxed{5} \quad 7 \quad 9 \\ + \quad 3 \quad 9 \quad 9 \\ \hline \end{array}$$

Addition stories

Example

There are 178 learners in Infant school and 569 learners in Junior school at a school. How many learners are there altogether at the school?

Solution

Learners in Infant school

Learners in Junior school

Learners at the school altogether

	1	7	8
+	5	6	9
	7	4	7

Practice exercise 2

1. A boy is carrying 20 kg of rice and a girl has 18kg. How many kilograms are they carrying altogether?
2. The dip attendant put 800 litres of water in a dip tank on Monday and 670 litres on Tuesday. How many litres of water did he put in the dip tank on both days?
3. There are 250 ml of milk in one can and 340 ml in another. How many millilitres are there altogether?
4. Zororo is 78cm tall. She is 12cm shorter than her sister Thandiwe. How tall is Thandiwe?
5. A school garden has 4 equal sides each measuring 120m. How many metres are they altogether?
6. A farmer has 349 goats, 251 sheep and 560 cattle. How many animals are at the farm?



Adding thousands

Example

A farmer has two fields to farm. He plants 4 245 soya bean plants in Field A and 1 338 soya bean plants in Field B. How many soya bean plants did he plant altogether?



We write

$$4\,245 + 1\,338 =$$

	4	2	1	4	5
+	1	3	3	8	
	5	5	8	3	

Practice exercise 3

Do these

1.

T	H	T	U
5	2	6	5
+	1	2	3

2.

T	H	T	U
3	3	7	8
+	1	0	7

3.

T	H	T	U
4	3	8	6
+	4	9	3

4.

T	H	T	U
7	5	0	4
+	2	9	8

5.

T	H	T	U
7	7	5	5
+	3	4	9

6.

T	H	T	U
7	4	1	4
+	1	2	5

7.

T	H	T	U
3	4	7	8
+	3	2	9

8.

T	H	T	U
2	5	9	9
+	5	9	4

9.

T	H	T	U
4	4	7	2
+	3	1	8

10.

T	H	T	U
2	2	5	0
+	1	7	4

11.

T	H	T	U
8	4	7	6
+	1	3	4

12.

T	H	T	U
1	7	7	2
+	1	2	8

13.

T	H	T	U
4	2	1	5
+	1	8	2

14.

T	H	T	U
4	1	7	5
+	2	8	7

15.

T	H	T	U
5	7	2	8
+	2	4	9

Adding measures

Quantities are measured using measures.

Money = cents and dollars

Mass = grams and kilograms

Length = millimetres, centimetres and metres

Practice exercise 4

Add the measures below.

1.

T	H	T	U
1	5	5	8c
+	3	3	3
			c

2.

H	T	U
5	4	4
+	2	4
		c

3.

H	T	U
4	9	1
+	3	7
		c

4.

H	T	U
8	2	9
+	1	1
		c

5.

H	T	U
9	2	6
+	2	9
		c

6.

H	T	U
4	3	9
+	1	2
		kg

7.

H	T	U
6	3	8
+	4	2
		kg

8.

H	T	U
7	2	3
+	6	8
		g

9.

H	T	U
8	2	0
+	1	8
		g

10.

H	T	U
9	0	0
+	6	3
		m

11.

H	T	U
4	3	6
+	1	2
		cm

12.

H	T	U
9	3	8
+	5	2
		ml

13.

H	T	U
6	2	8
+	5	8
		mm

14.

H	T	U
9	2	0
+	4	8
		km

15.

H	T	U
8	0	0
+	6	3
		l

Applications

Example

In a village there are 739 men, 1 176 women and 4 562 children. How many people live in the village?

Solution

Number of men

Number of women

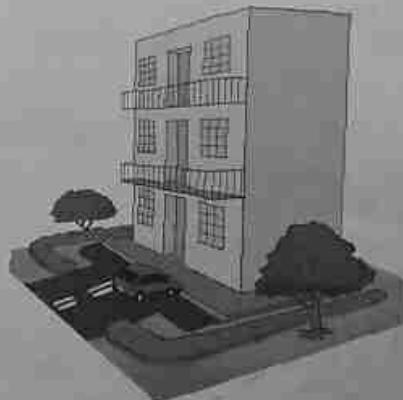
Number of children

Total number of people

	T	H	T	U
Number of men		1	7	3
Number of women		1	1	7
Number of children	+	4	5	6
Total number of people		6	4	7

Practice exercise 5

1. A baker baked 2 530 queen cakes on first day and 1 477 queen cakes on the second day. How many queen cakes did he bake in two days?
2. What is the total of books received, if a school received 1 322 writing exercise books and 325 mathematics exercise books?
3. A plant produced 4 850 black cellphones and 1 059 white cellphones in a week. What is the total number cellphone produced?
4. In a residential complex there are 972 two bedroomed flats and 1 473 three bedroomed homes. Find the sum of houses in the complex?
5. It took 4 327 bricks to build the foundation of a computer lab at school. 3 170 bricks were used to build the wall. How many bricks were used to construct the computer lab altogether?
6. There are 3 627 women and 3 496 men who work at a farm. What is the total of workers at the farm?



End of unit assessment

Multiple choice

1.

	1	3	8
+	1	2	5

A. 12

B. 13

C. 163

D. 263

2.

	5	8	9	m
+	2	0	8	m

A. 97

B. 297

C. 381

D. 797

3. $4\ 365\text{cm} + 2\ 567\text{cm} =$

A. 6923cm

B. 6 932cm

C. 1 798cm

D. 1 898cm

4. $6\ 345\text{g} + 2\ 875\text{g} =$

A. 3 470g

B. 3 475g

C. 9 220g

D. 9 230g

5. $7\ 564\text{ml} + 1\ 879\text{ml} =$

A. 5 680ml

B. 5 685ml

C. 9 443ml

D. 9 445ml

6. $\$3\ 087 + \$2\ 858 =$

A. \$225

B. \$229

C. \$5 945

D. \$5 955

7. $750\text{l} + 1\ 540\text{l} + 2\ 550\text{l} =$

A. 2 290l

B. 3 300 l

C. 40 90 l

D. 4 840 l

8. $8\ 000 + 2\ 599 =$

A. 5 400

B. 5 499

C. 10 599

D. 10 509

9. $\$7\ 680 + \$1\ 700 =$

A. \$9 380

B. \$9 360

C. \$5 980

D. \$5 960

10. $1\ 964 + 1\ 966 =$

A. 2 438

B. 4 964

C. 3 928

D. 3 930

[10 marks]

Structured questions

1. Find the sum of 3 942 and 5 858. [2]

2. $2\ 000 + 800 + 40 + 9 = \boxed{\quad}$ [2]3. $399 + 209 = \boxed{\quad}$ [1]4. $807 + 678 = \boxed{\quad}$ [1]

5. A farmer has 175 sheep, 1158 cattle and 205 goats. How many animals does she have altogether? [2]

6. Takunda bought a bicycle for \$120.50; a carrier for \$5.25 and two spare tubes for \$2.50 each. How much did he pay altogether? [2]

Unit 5

Subtraction of whole numbers

Objectives

You should be able to:

1. subtract using equal addition
2. subtract measures.

Flashback

What is subtraction?



Key words

take away

Subtracting hundreds

Example

$$926 - 558$$

	9	2	6
-	5	5	8
	3	6	8

Look. There are more units and tens in the bottom number.

Add 10 units to the unit column and 10 units = 1 ten in the ten column.

Add 10 tens to the ten column and 10 tens = 1 hundred in the hundred column.

Practice exercise 1

1.

3	4	5
-	1	2
	2	3

2.

3	7	2
-	2	4
	1	1

3.

8	4	1
-	1	0
	4	1

4.

6	7	7
-	2	8
	0	7

5.

4	4	5
-	1	3
	9	2

6.

2	7	2
-	1	4
	8	3

7.

6	5	4
-	3	7
	2	2

8.

2	8	5
-	1	8
	9	7

9.

9	2	0
-	3	7
	5	5

10.

9	0	0
-	5	8
	4	2

11.	H T U	4 5 6	- 1 3 2	
12.	H T U	5 6 7	- 2 4 3	
13.	H T U	6 7 8	- 4 6 5	
14.	H T U	8 2 0	- 1 1 9	
15.	H T U	7 2 4	- 1 9 3	
16.	H T U	4 3 6	- 1 2 8	
17.	H T U	7 3 8	- 5 2 9	
18.	H T U	6 2 3	- 4 8 4	
19.	H T U	7 2 0	- 1 8 4	
20.	H T U	9 0 0	- 7 3 8	

Subtraction stories

Example

A local farmer harvested 185 bags of maize this season. If he sold 96 bags, how much maize has he left?



H	T	U
1	8	5
-	9	6
8	9	9

He has 89 bags left.

Practice exercise 2

- Mr Nyoni had 279 litres of milk. He gave 136 litres to the community orphanage. How many litres had he left?
- Alex has 572 cents. Monica has 353 cents. How many more cents has Alex than Monica?
- There are 541 books in Grade three classroom, and 1 859 in a Grade four classroom. How many more books are there in the Grade four classroom than in the Grade three?
- In a school of 914 children 109 are away. How many children are presently at the school?
- There were 977 trees in a forestry plantation. 589 were harvested. How many trees remained?
- Mrs Nyama bought a bed costing \$854. If she paid with notes worth \$900. How much change did she get?

Subtracting thousands

Example

There are more units, tens and hundreds in bottom number.
 Add 10 units to the unit column and 10 units = 1 ten in the ten column.
 Add 10 tens to the ten column and 10 tens = 1 hundred in the hundred column.
 Add 10 hundreds to the hundreds column and 10 hundreds = 1 thousand in the thousand column.

Th	H	T	U
5	1	7	15
- 3	8	10	7
2	2	7	8

Practice exercise 3

1.

Th	H	T	U
3	4	0	2
- 1	1	4	0

2.

Th	H	T	U
4	5	2	1
- 1	3	5	6

3.

Th	H	T	U
7	9	7	2
- 1	4	2	6

4.

Th	H	T	U
5	7	1	2
- 1	5	7	5

5.

Th	H	T	U
8	5	1	2
- 7	4	8	6

6.

Th	H	T	U
7	3	4	6
- 1	4	5	4

7.

Th	H	T	U
3	0	4	2
- 2	0	5	1

8.

Th	H	T	U
9	3	9	7
- 1	2	8	4

9.

Th	H	T	U
7	3	2	5
- 1	7	2	2

10.

Th	H	T	U
8	0	0	0
- 7	0	2	8

Practice exercise 4

Subtract the following measures.

1.

Th	H	T	U
5	2	4	5 cm
- 2	3	2	2 cm

2.

Th	H	T	U
9	1	1	5 m
- 7	6	6	8 m

3.

Th	H	T	U
4	0	0	8 kg
- 3	7	2	6 kg

4.

Th	H	T	U
3	4	5	6 l
- 1	2	5	0 l

5.

Th	H	T	U
5	8	2	1 l
- 4	1	7	2 l

6.

Th	H	T	U
3	5	2	1 cm
- 2	5	0	0 cm

7.

Th	H	T	U
1	4	5	1 mm
- 3	2	2	mm

8.

Th	H	T	U
5	0	0	0 m
- 2	2	5	m

9.

Th	H	T	U
9	3	6	9 m
- 4	4	7	5 m

10.

Th	H	T	U
8	0	0	0 kg
- 6	3	4	8 kg

Subtraction stories

Example

There were 5 600 trees on a hill. 3 855 were burnt in a fire. How many trees are left on the hill? Write a sentence and find the answer. Like this.

	5	6	0	0
-	3	8	5	5
	1	7	4	5

There are $5\ 600 - 3\ 855$ trees left
= 1 745 trees.

Practice exercise 5

- Hartley Primary School has 1 387 learners. How many girls are there if 869 are boys?
- Mr Rukawo bought 1 750 kg of pork for his motel. How much pork is left after using 959 kg?
- Mr Chikonas had 5 800 litres of diesel. He used 2 555 litres. How much diesel was left?
- A farmer has 5 000 metres of barbed wire. He uses 2 750 metres. How much wire is left?
- There were 9 550 people watching a football match. 7 250 were men. How many were women?
- It cost Mr Mpala \$15 890 to build his house at Kaguvu Phase 4. Mr Mhara's house cost \$9 545. Whose house cost more? By how much more did it cost?
- Last year our school planted 2 500 trees. This year we are going to plant 5 500 trees. How many more trees are we going to plant this year?
- A shopkeeper has 2 800 green bars of soap. She sells 1 923 green bars of soap. How many bars are in the shop?
- Reduce 4 999 by 1 099.
- Find the difference between 9 875 and 4 785.
- In a plantation there are 7 590. Of these 1 980 are pine trees and 2 680 are cyprus trees. The rest are gum trees. How many are gum trees?
- A farmer has sold 3 590 eggs. How far is he from his sales target of 8 500 eggs?

End of unit assessment

Multiple choice

1.

	1	3	8
-	1	2	5

- A. 12 B. 13 C. 163 D. 263

	T	H	U	D
-	5	8	9	m
-	2	0	8	m

- A. 97 m B. 297 m
C. 381 m D. 797 m

	T	H	U	D
-	7	2	6	ml
-	1	8	3	ml

- A. 43 ml B. 543 ml
C. 643 ml D. 909 ml

	T	H	U	D
-	8	0	0	0
-	6	0	5	7

- A. 2 402 B. 1 962
C. 1 943 D. 14 057

5. Mr Chokera drives 10 km to Dorowa Mine, then 9 km back to see his friend. How many kilometres was he from home?
A. 7 km B. 9 km C. 10 km D. 1 km
6. Mr Mhara and his brother bought a car together. Mr Mhara paid \$1 640 and the brother \$1 370. How much more did Mr Mhara pay than his brother?
A. \$270 B. \$2 110 C. \$3 001 D. \$3 010
7. Mr Dzete had 800 kg of fertiliser in his cart. He used 450 kg in his maize field. How many kilograms were left in the cart?
A. 350 B. 450 C. 550 D. 800
8. A farmer had 1 500 cattle and sold 788. How many cattle were left?
A. 1 300 B. 1 845 C. 1 390 D. 712.
9. $4\,845\text{g} - 3\,545\text{g} = \square$
A. 1 300 B. 1 845 C. 1 390 D. 8 390.
10. $6\,000 - 4\,275 = \square$
A. 1 725 B. 2 745 C. 10 000 D. 10 275

[10 marks]

Structured questions

1. What is difference between 9 206 and 926? [1]
2. Take away 3 942 from 5 858. [1]
3. A farmer has 900 m of barbed wire. He uses 575m. How much wire is left? [1]
4. A poultry farmer has 5 590 chickens. She sold 2 875. How many chickens were left? [1]
5. a) $3\,000\text{ m} - 1\,888\text{m} = \square$ b) $9\,428\text{ km} - 4\,575\text{ km} = \square$
c) $\$10\,000 - \$7\,428 = \square$ d) $325\text{ l} - 114\text{ l} = \square$
e) $416\text{ kg} - 172\text{ kg} = \square$ f) $1\,840\text{ g} - 342\text{ g} = \square$ [6]

Unit 6

Multiplication of whole numbers

Objectives

You should be able to:

1. demonstrate multiplication facts by single digits
2. multiply where carrying is involved
3. identify factors of numbers within the range 0 to 1 000.

Flashback

What is multiplication?



Key words

Product factors

Repeated addition

Example 1

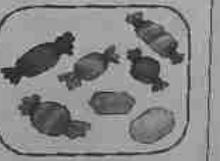
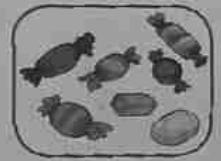
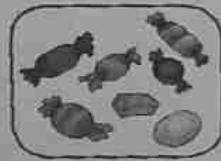
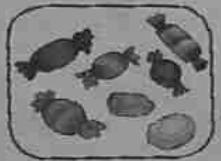
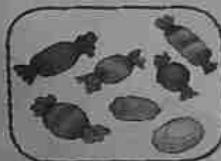
Look at these sets below.



$$= 2 + 2 + 2 = 6$$

But it is shorter to write $2 \times 3 = 6$
We say 2 multiplied by 3 equals 6.

Example 2



$$7 + 7 + 7 + 7 + 7 = 7 \times 5 = 35$$

Practice exercise 1

Look at the example. Work out the following in the same way.

1. 2×7

2. 3×6

3. 5×1

4. 7×9

5. 6×3

6. 4×4

7. 3×7

8. 9×7

9. 4×9

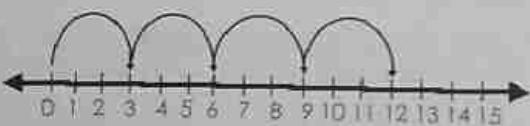
10. 8×10

11. 5×6

12. 4×8

Multiplying using the number line

Example 1



Look at the number line.

It shows that 4 steps of 3 bring us to 12. $3 \times 4 = 12$.

It shows that 3 steps of 4 bring us to 12. $4 \times 3 = 12$.

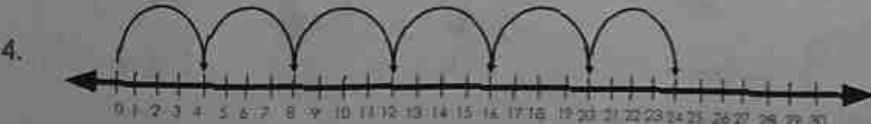
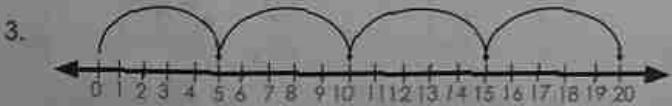
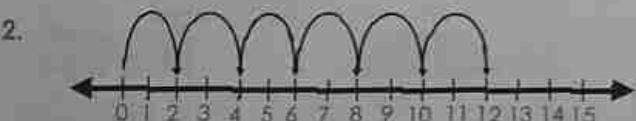
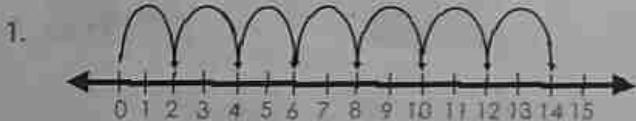
When numbers are multiplied, the product is found:

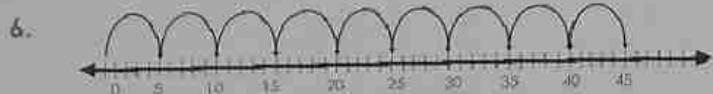
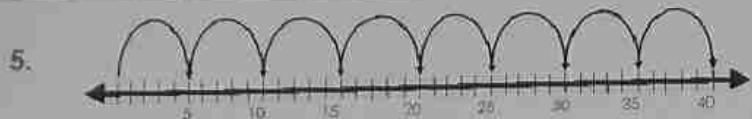
$3 \times 4 = 12$, $4 \times 3 = 12$.

12 is the product of 3 and 4.

Practice exercise 2

Find the product of the following.





Find the product of the following.

7. The product of 2 and 2 and 5 is .

8. The product of 4 and 8 is .

9. The _____ of 3 and 3 and 5 is 45.

10. The _____ of 5 and 2 and 3 is 30.

11. When numbers are multiplied the _____ is found.

Multiplying by one digit numbers

Example

		7	5
×			3
	2	2	5

Multiply 5 units by 3 we get 15 units. Write 5 and carry one ten.

Multiply 7 tens by 3 we get 21 tens. Add the carried one ten. We get 22 tens. Write 2 carry 20 tens = 2 hundreds.

Write 2 under hundreds.

$$75 \times 3 = 225$$

Practice exercise 3

Find the product of the following.

1.

		1	3
×			3
	2	2	5

2.

		2	2
×			4
	2	2	5

3.

		5	1
×			4
	2	2	5

4.

		3	8
×			4
	2	2	5

5.

		4	6
×			6
	2	2	5

6.

		4	1
×			7
	2	2	5

7.

		8	9
×			2
	2	2	5

8.

		6	4
×			5
	2	2	5

9.

		3	1
×			8
	2	2	5

10.

		7	2
×			9
	2	2	5

11.

		5	6
×			7
	2	2	5

12.

		7	8
×			5
	2	2	5

Multiplying by one digit numbers

Example

	H	T	U
x	3	1	3
			2
	6	2	6

$$313 \times 2$$

Multiply 3 units by 2 we get 6 units.

Multiply 1 ten by 2 we get 2 tens.

Multiply 3 hundreds by 2 we get 6 hundreds.

$$313 \times 2 = 626$$

Practice exercise 4

Find the product of the following.

1.

	H	T	U
x	1	2	3
			2

2.

	H	T	U
x	2	2	0
			4

3.

	H	T	U
x	2	2	1
			3

4.

	H	T	U
x	2	1	1
			3

5.

	H	T	U
x	1	2	2
			4

6.

	H	T	U
x	3	0	4
			2

7.

	H	T	U
x	2	2	3
			3

8.

	H	T	U
x	1	2	1
			3

9.

	H	T	U
x	4	1	2
			2

10.

	H	T	U
x	3	3	2
			3

11.

	H	T	U
x	2	0	2
			4

12.

	H	T	U
x			5
			1

Factors

A factor is a number that can get into another number without leaving a remainder.
 $3 \times 5 = 15$

3 and 5 are known as factors of 15, while 15 is known as the product of 3 and 5.
So the factors of 15 are: 1, 3 and 5.

That is $1 \times 15 = 15$ $3 \times 5 = 15$ $5 \times 3 = 15$ $15 \times 1 = 15$.

Practice exercise 5

1. Find the factors of the following numbers:
a) 6 b) 9 c) 12 d) 24 e) 36
f) 72 g) 81 h) 108 i) 144 j) 225
2. Give the missing factor of the given number.
a) $12 = 1, 2, 3, \square, 6$ and 12.
b) $16 = 1, 2, 4, \square$ and 16.
c) $36 = 1, 2, 3, \square, 6, 9, 12, 18$ and 36.
d) $48 = 1, 2, 3, 4, \square, 8, 12, 16, \square$ and 48.
e) $75 = 1, 3, \square, 15, 25$ and \square .
f) $100 = 1, 2, 4, \square, \square, 20, 25, \square$ and 100.

Multiplication stories

There are 8 classes in infant school. In each class there are 45 learners. How many learners are there in infant school?

There are 45×8 learners in infant school.

There are 360 learners in infant school.

	M	Y	O
	4	5	
x			8
	3	6	0

Practice exercise 6

1. What is the product of 18 and 5?
2. A farmer harvests 302 boxes of tomatoes per day. How many did he harvest in 3 days?
3. Find the product of 78 and 6.
4. The product of 213 and 2 is \square .
5. There are 10 classes in Junior primary school. In each class there are 45 learners. How many learners are there in Junior school?
6. Mr Moyo travels 125km in one day. How many kilometres will he travel in 5 days?

The explorer

Project work

1. Find the number of learners in your class by multiplying the number of learners per group with the number of groups in your class.
2. Find the number of learners in Grade four by multiplying the number of learners in your class with the number of Grade 4 classes at your school.

End of unit assessment

Multiple choice

1. $2 \times 6 = \square$
A. 2 B. 4 C. 8 D. 12
2. $5 \times 8 = \square$
A. 3 B. 13 C. 36 D. 40
3. $7 \times 9 = \square$
A. 2 B. 7 C. 16 D. 63
4. $10 \times 2 = \square$
A. 2 B. 20 C. 22 D. 120
5. $\square \times 7 = 84$
A. 56 B. 28 C. 15 D. 12
6. $\$87 \times 6 = \square$
A. \\$522 B. \\$482 C. \\$422 D. \\$93
7. $40g \times 5 = \square$
A. 405g B. 201g C. 200g D. 255 g
8. $213 \text{ m} \times 3 = \square \text{ m}$
A. 629 B. 926 C. 639 D. 936
9. Mrs Mpala sold 4 suitcases at \$150.00 each. How much money did she get altogether?
A. \$150 B. \$300 C. \$600 D. \$900
10. A packet of ARV tablets cost \$15.00 each. There are 9 HIV positive people who needs them. What is the total cost of the ARV tablets?
A. \$6 B. \$24 C. \$45 D. \$135

[10 marks]

Structured questions

1. $9 \times \square = 63$
2. $98 \times 7 = \square$
3. Find the product of 79 and 10.
4. $28 \times \square = 280$
5.

		5	4
*			9

[1]
6. A crate of eggs has 30 eggs. How many eggs are in 9 crates?
7. Mrs Nyama has 105 bottles of 2 litres of milk. How much milk does she have altogether?
Give the missing factor on the number below.
8. $28 = 1, 2, 4, \square, 14 \text{ and } 28$
9. $36 = 1, 2, 3, \square, 12, 18 \text{ and } 28$
10. $149 \times 5 = \square$

Unit

7

Division of whole numbers

Objectives

You should be able to:

- divide whole numbers by one digit number
- divide measures by whole numbers.

Flashback

What is division?

Key words



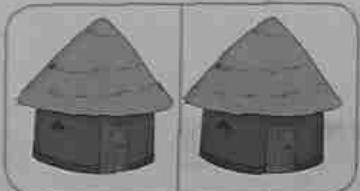
equally among between

Divide by one digit number

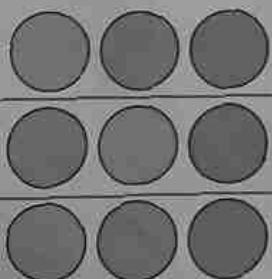
Example

Divide 2 by 2

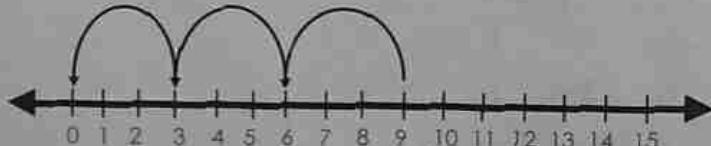
Two divided by two, we can write. $2 \div 2 = 1$



Example



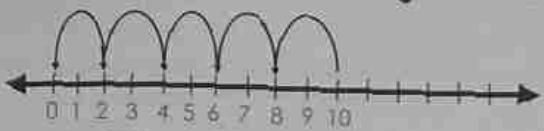
$$9 \div 3 = 3$$



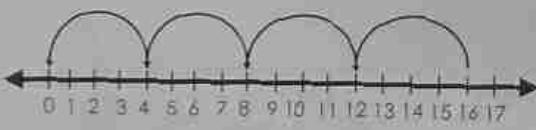
$$9 \div 3 = 3$$

Practice exercise 1

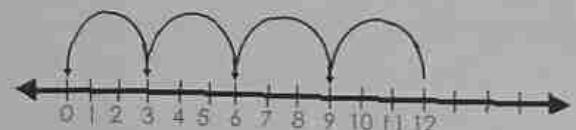
Divide the following numbers using a number line.



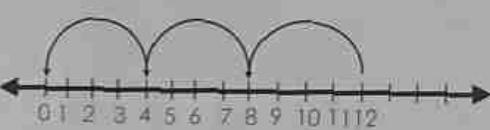
$$1. \quad 10 \div 2 = \square$$



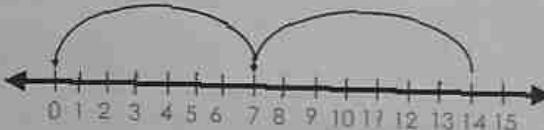
$$2. \quad 16 \div 4 = \square$$



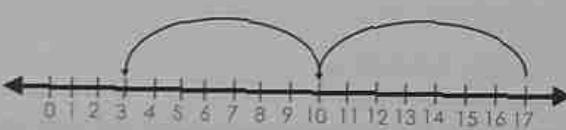
$$3. \quad 12 \div 3 = \square$$



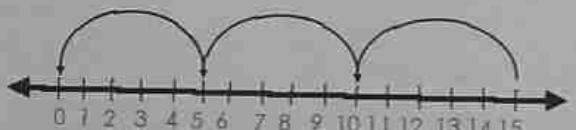
$$4. \quad 12 \div 4 = \square$$



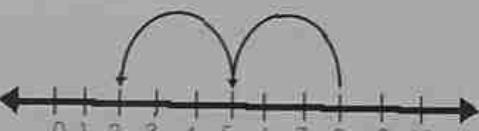
$$5. \quad 14 \div 7 = \square$$



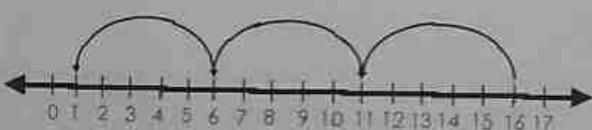
$$6. \quad 17 \div 7 = \square \text{ r } \square$$



$$7. \quad 15 \div 5 = \square$$



$$8. \quad 8 \div 3 = \square \text{ r } \square$$



$$9. \quad 16 \div 5 = \square \text{ r } \square$$



$$10. \quad 21 \div 5 = \square \text{ r } \square$$

Extra work



Try these. Some have remainders.

$$1. \quad 12 \div 2$$

$$2. \quad 8 \div 6$$

$$3. \quad 1 \div 1$$

$$4. \quad 18 \div 9$$

$$5. \quad 5 \div 4$$

$$6. \quad 12 \div 1$$

$$7. \quad 13 \div 4$$

$$8. \quad 10 \div 5$$

$$9. \quad 17 \div 2$$

$$10. \quad 7 \div 3$$

$$11. \quad 15 \div 3$$

$$12. \quad 11 \div 3$$

Repeated subtraction

Division is repeated subtraction.

Example

$$\begin{array}{r} 16 \div 4 \\ - 4 \quad \text{Step 1} \\ \hline 12 \\ - 4 \quad \text{Step 2} \\ \hline 8 \\ - 4 \quad \text{Step 3} \\ \hline 4 \\ - 4 \quad \text{Step 4} \\ \hline 0 \end{array}$$

Hence, $16 \div 4 = 4$

Practice exercise 2

Do repeated subtraction to get the answer.

- | | | | |
|----------------|----------------|----------------|----------------|
| 1. $24 \div 6$ | 2. $32 \div 4$ | 3. $30 \div 6$ | 4. $35 \div 7$ |
| 5. $18 \div 3$ | 6. $28 \div 7$ | 7. $42 \div 6$ | 8. $25 \div 5$ |

Long division

Example

Long division is method used to divide big numbers.

$$\begin{array}{r} 23 \\ 2 \overline{)46} \\ -4 \\ \hline 6 \\ -6 \\ \hline 0 \end{array}$$

Hence, $46 \div 2 = 23$

Practice exercise 3

Try these.

- | | | | | | |
|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| 1. $2\overline{)24}$ | 2. $3\overline{)96}$ | 3. $2\overline{)86}$ | 4. $4\overline{)80}$ | 5. $2\overline{)48}$ | 6. $4\overline{)48}$ |
| 7. $2\overline{)60}$ | 8. $5\overline{)55}$ | 9. $3\overline{)39}$ | 10. $7\overline{)70}$ | 11. $9\overline{)99}$ | 12. $4\overline{)84}$ |

Dividing measures

Example 1

A tailor was given 42 metres of material to sow for 3 people. How many metres does he have for each person?

$$\begin{array}{r} 14 \\ 3 \overline{) 42 } \\ -3 \downarrow \\ 12 \\ -12 \\ \hline 0 \end{array}$$

Hence, each person has 14 metres.



Example 2

Mrs Khumalo bought 66 kgs of rabbit pellets. If the rabbits ate the feed in 5 days.

- a) How much feed did they eat per day?
- b) How much feed was left over?

$$\begin{array}{r} 13 \\ 5 \overline{) 66 } \\ -5 \downarrow \\ 16 \\ -15 \\ \hline 01 \end{array}$$



a) The rabbits eat 13 kgs per day.

b) There was 1kg left over

Practice exercise 4

Do the following.

1. $2\sqrt{32\text{ml}}$ 2. $3\sqrt{72\text{ml}}$ 3. $4\sqrt{56\text{l}}$ 4. $6\sqrt{78\text{l}}$ 5. $5\sqrt{79\text{kg}}$ 6. $8\sqrt{96\text{g}}$

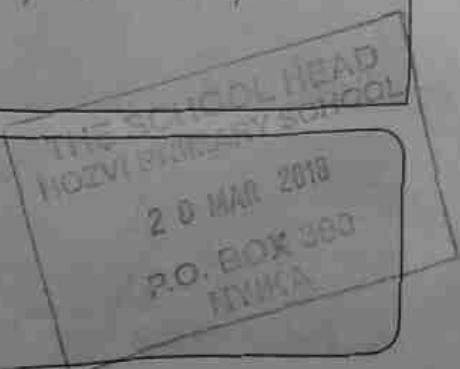
7. $9\sqrt{96\text{m}}$ 8. $4\sqrt{57\text{g}}$ 9. $7\sqrt{39\text{cm}}$

Extra work



Try these.

10. $7\sqrt{56}$ 11. $8\sqrt{125}$ 12. $4\sqrt{38}$



Division stories

Five children share 85 apples amongst them. How many apples did each child get?

$$\begin{array}{r} 17 \\ 5) 85 \\ - 5 \\ \hline 35 \\ - 35 \\ \hline 0 \end{array}$$

Practice exercise 4

Do the following.

1. Seventy six tennis balls are shared equally among 5 learners in the tennis team.
 - a) How many tennis balls did each athlete get?
 - b) How many tennis balls were left over?
2. Share 48 cents between two friends.
3. 7 packets of sugar are 14kgs. What is mass of 1 packet?
4. Tendai had 84 bottle tops to share among the 7 children in his group. How many did he give to each child?
5. A farmer had 85 bags of mealies. He shared them to 5 equal piles. How many bags are in each pile?
6. Share 18 cents among 5 children. How much does each child get? How many cents are left over?
7. There are 16 passengers on a bus. If they are seated in rows of 4. How many rows are in the bus?
8. A farmer plants 18 cabbages in two equal rows. How many cabbages did he plant in each row?

Fact file



Explore division facts

1. A number divided by itself is 1.
2. A number divided by 1 the answer its itself.
3. Zero divided by any number the answer is zero.

End of unit assessment

Multiple choice

1. $36 \text{ divide by } 9 = \square$
A. 3 B. 4 C. 6 D. 9
2. $35\text{g divide by } 5 = \square$
A. 1g B. 7g C. 70g D. 71g
3. $72 \text{ divided by } 9 = \square$
A. 7 B. 8 C. 10 D. 11
4. $4\overline{)56}$
A. 16 B. 14 C. 8 D. 13
5. $7\overline{)84}$
A. 10 B. 13 C. 12 D. 20
6. A week has 7 days. How many weeks are in 63 days?
A. 7 B. 8 C. 9 D. 10
7. A bowl holds 21 tomatoes. How many pockets containing 7 tomatoes can be filled?
A. 3 B. 7 C. 15 D. 30
8. Nine cups cost 90c. What is the cost of one cup?
A. 20c B. 10c C. 50c D. 40c

[10 marks]

Structured questions

1. $72 \text{ kg divided by } 8 = \square$ [1]
2. A cook has a 25 litre bottle of cooking oil. He uses 5 litres a day. The bottle will take \square days to finish. [2]
3. $20 \text{ divided by } 6 = \square \text{ r } \square$ [2]
4. $8\overline{)60} = \square \text{ r } \square$ [2]
5. Three grade four learners have a total mass of 84 kg. What is the mass of each learner? [1]
6. $42 \div 6 = \square$ [1]
7. $73 \div 8 = \square \text{ r } \square$ [1]

Unit 8

Arabic and roman numerals

Objectives

You should be able to:

1. read and write numbers in arabic and roman numerals
2. convert numbers from arabic to roman numerals
3. convert numbers from roman to arabic numerals.

Flashback

Say the following numbers to a friend iii, vi, ix, x.



Key word

symbols

Roman and arabic numerals

Numbers can be written in Arabic numerals or in Roman numerals.

Arabic numerals have ten symbols which are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Roman numerals have seven symbols which are I, V, X, L, C, D and M.

1	2	3	4	5
I	II	III	IV	V
6	7	8	9	10
VI	VII	VIII	IX	X
11	15	17	20	24
XI	XV	XVII	XX	XXIV
30	37	40	43	50
XXX	XXXVII	XL	XLIII	L

Practice exercise 1

Convert arabic numerals to roman numerals.

- | | | | | |
|-------|-------|-------|-------|--------|
| 1. 12 | 2. 8 | 3. 27 | 4. 33 | 5. 18 |
| 6. 50 | 7. 29 | 8. 24 | 9. 15 | 10. 49 |

Practice exercise 2

Convert roman numerals to arabic numerals.

- | | | | | |
|---------|---------|----------|-----------|----------|
| 1. VII | 2. XXIV | 3. XVII | 4. XXVIII | 5. XLI |
| 6. XXIX | 7. XXVI | 8. XLVII | 9. L | 10. XLIX |

Telling time

Example

What is the time shown on the clock face?

Write the time in arabic numerals.

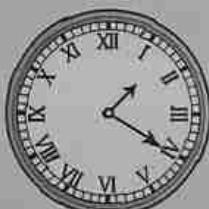
The time is 8 o' clock.



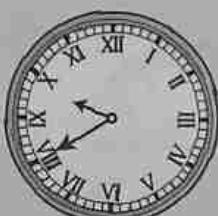
Practice exercise 3

What is the time shown on the clock face? Write the time in arabic numerals.

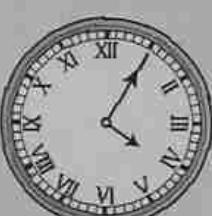
1.



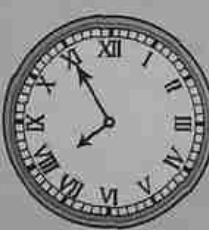
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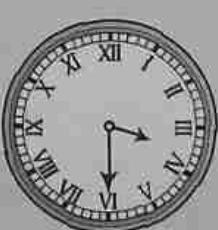
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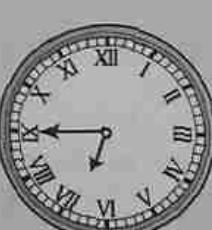
4.



5.



6.



Practice exercise 4

Copy the table and fill in the missing spaces with roman numerals.

I	II	III	IV	V	VI	VII	VIII	IX	X
XI						XVII			XX
	XXII			XXV			XXVIII		
		XXXIV							XL
XII			XLV	XLVI			XLIX		

Fact file

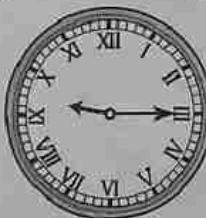


Roman numerals are still in use today. An example is in clock faces.
With your friend, find out where roman numerals are still being used today.

End of unit assessment

Multiple choice

1. $25 = \square$ in roman numerals.
A. VX B. XV C. XXV D. XIX
 2. $44 = \square$ in roman numerals.
A. XLIV B. LXIV C. IVXL D. LXVI
 3. XXXIII = \square in arabic numerals.
A. 36 B. 43 C. 33 D. 28
 4. Convert 18 to roman numerals.
A. XXVIII B. XVIII C. XXXVIII D. XXVII
 5. Convert XLIV to arabic numerals.
A. 14 B. 24 C. 34 D. 44
- [10 marks]



6. What is the time?
A. $\frac{1}{4}$ past 6 B. $\frac{1}{4}$ to 8 C. $\frac{1}{4}$ to 9 D. $\frac{1}{4}$ past 9
 - XVI XXVI \square XLVI
 7. What is the missing number?
A. XVI B. XXXII C. XXXVI D. XLIX
 8. XXXII \square XXXVI
A. > B. = C. + D. <
 9. XL \square XIX
A. = B. - C. > D. <
 10. $XXVII = \square$ in roman numerals.
A. 14 B. 23 C. 72 D. 27
- [10 marks]

Structured questions

11. Convert the following numbers to roman numerals.
a) 28 b) 13 c) 47 d) 33 e) 29 [5]
12. Convert the following roman numerals to arabic numerals.
a) XLVI b) XIX c) XLIX d) XXXII e) XL [5]

Unit 9

Time

Objectives

You should be able to:

1. identify units of time
2. apply a.m, noon, p.m, midnight and fortnight to tell time
3. tell time to the nearest 5 minutes
4. convert time from one unit to another.

Flashback

a.m means in the morning.
p.m means in the afternoon.

Key words

midnight fortnight noon a.m p.m.

Units of time

Time is measured in units. For example, days, weeks, months and years.

1 day	- 24 hours
fortnight	- 2 weeks
1 year	- 12 months
1 century	- 100 years

1 week	- 7 days
1 month	- 28 / 30 /31 days
1 decade	- 10 years

Practice exercise 1

Convert the following unit of time.

1. Convert days into weeks
 - 14 days =
 - 21 days =
 - 42 days =
2. Convert weeks into days
 - 5 weeks =
 - 4 weeks =
 - 1 week =

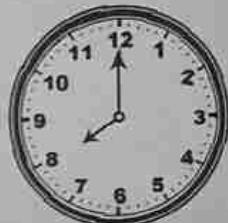
3. Convert hours into days.
- a) 24 hours = b) 72 hours = c) 48 hours =
4. Convert days into hours.
- a) 7 days = b) 3 days = c) 1 day =
5. Convert months into years.
- a) 24 months = b) 36 months = c) 12 months =

Telling time

Example

When telling time we look at the minute hand and hour hand.
The minute hand is on 12 and the hour hand is on 8.

The time is **8 o'clock**.



Practice exercise 2

Now tell the following time.

1.



2.



3.



4.



5.



6.



7.



8.



9.



10.



11.



12.



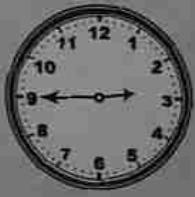
13.



14.



15.



16.



Minutes

There are 60 minutes in 1 hour.
Look at this picture of a clock face.



Practice exercise 3

How many minutes in

1. An hour?
2. $\frac{1}{2}$ an hour?
3. $\frac{1}{4}$ of an hour.

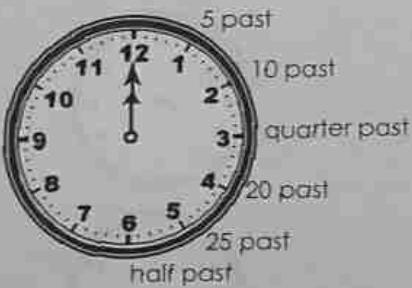
How many minute spaces between

4. 12 and 1
5. 12 and 2
6. 12 and 3
7. 12 and 4
8. 12 and 5
9. 12 and 6.

How many minute spaces between

10. 7 and 12
11. 8 and 12
12. 9 and 12
13. 10 and 12
14. 11 and 12.

Telling time: past



When telling time we look at the minute hand is on 1, 2, 3, 4, 5 and 6 we say 'past'.

Practice exercise 4

What time do these clocks show?

1.



2.



3.



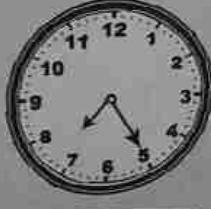
4.



5.



6.



Draw clock faces and show

7. 5 past 8

8. $\frac{1}{2}$ past 4

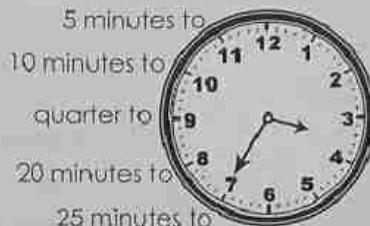
9. 10 past 5

10. $\frac{1}{4}$ past 11

11. 25 past 8

12. 5 past 12

Telling time: to



When telling time we look at the minute hand is on 7, 8, 9, 10 and 11 we say 'to'.

Practice exercise 5

What time do these clocks show?

1.



2.



3.



4.



5.



6.



Draw clock faces and show

7. 5 to 4

8. 20 to 1

9. 25 to 12

10. $\frac{1}{4}$ to 8

11. 10 to 1

12. 5 to 6

End of unit assessment

Multiple choice

1. What is the time?

- A. $\frac{1}{4}$ past 3 B. $\frac{1}{2}$ past 3
C. $\frac{1}{2}$ past 6 D. 3 o'clock



2. What is the time?

- A. 10 past 8 B. 20 past 8
C. 30 past 8 D. 20 to 8



3. What is the time?

- A. 10 past 3 B. 20 past 3
C. 10 to 3 D. 20 to 3



4. A fortnight has days.

- A. 5 B. 7
C. 14 D. 24



5. What is the time?

- A. 10 past 1 B. 20 to 1 C. 5 to 1 D. 50 to 1

6. 60 minutes =

- A. 60 hours B. 30 hours C. 24 hours D. 1 hour

7. 1 week has days.

- A. 28 B. 24 C. 14 D. 7

8. March has days.

- A. 14 B. 21 C. 28 D. 31

The calendar below is for the month of April 2017.

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

9. The first Friday of the month was on date?

- A. 29 B. 22 C. 15 D. 7

10. The end of the above month is _____.

- A. Sunday B. Monday C. Friday D. Saturday

[10 marks]

Structured questions

1. Brighton wakes up at 8 o'clock and goes to work 30 minutes later. What time does he go to work? [1]
 2. $72 \text{ hours} = \square \text{ days}$. [1]
 3. $1 \text{ hour} = \square \text{ minutes}$. [1]
 4. $2 \text{ hours} = \square \text{ minutes}$. [1]
 5. $\square \text{ year} = 12 \text{ months}$. [1]
- Draw clock faces to show
6. 20 past 6
 7. quarter to 8
 8. a) Thando took 45 minutes to bake 1 tray of queencakes. How many minutes does it take to bake 3 trays?
b) How many hours and minutes did it take to bake 3 trays? [2]
 9. $10 \text{ years} = \square$ [1]

Unit 10

More multiplication and Division

Objectives

You should be able to:

1. demonstrate multiplication facts by single digits
2. multiply where carrying is involved
3. multiply measures by numbers
4. identify factors of numbers within the range 0 to 1000
5. divide whole numbers by one digit number
6. divide measures by whole numbers.

Flashback

Product of means the answer you get after multiplying two numbers. In unit 5 you used a calculator to do division. In this Unit you will use a calculator to do division of larger numbers be familiar with words such as remainder and quotient.



Key words

product multiplier multiplication factors multiplicand quotient
remainder divisor dividend

Activity 1

Learn these times table.

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	48	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

To find 6×7 put your ruler along the 6 line. Put your finger on the 7 line at the top and move it down to the ruler. You find the answer 42.

Multiplying hundreds tens and units

Example

$$758 \times 9 = \boxed{}$$

		7	5	8
x		5	7	9
	6	8	2	2

8 units multiplied by 9 the answer is 72. Write 2 units and carry 7 tens.

5 tens multiplied by 9 the answer is 45. Add 7 to 45 = 52. Write 2 tens and carry 5 hundreds.

7 hundreds multiplied by 9 the answer is 63. Add 5 to 63 the answer is 68. Write 8 hundreds and carry 6 thousands.

Hence, $758 \times 9 = 6822$

Practice exercise 1

Do the following.

1.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	3	7	5	
x			5	
1		□	7	□

2.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	4	3	2	
x			6	
2		□	9	□

3.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	1	1	8	6
x			7	
8		□	0	□

4.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	8	7	2	
x			8	
□	9	7	□	

5.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	5	7	1	
x			9	
5		□	3	□

6.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	6	5	7	
x			7	
4		□	□	9

7.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	7	8	4	
x			6	
4		□	0	□

8.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	9	8	1	
x			7	
6		□	6	□

9.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	7	7	5	
x			6	
4		□	5	□

10.

	T <th>H</th> <th>U</th> <th>D</th>	H	U	D
	8	7	3	
x			8	
6		□	8	□

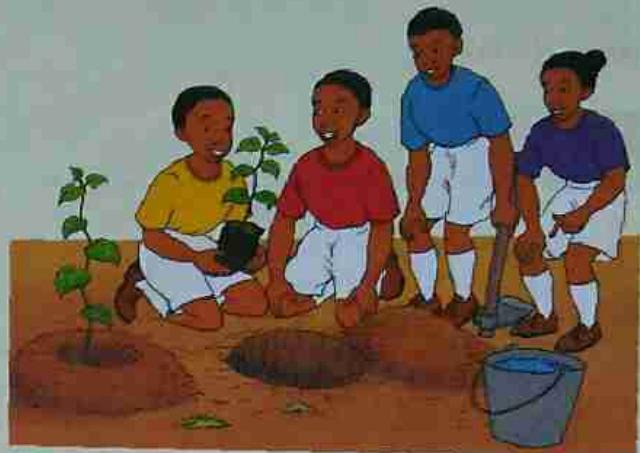
Multiplication stories

Example

A school is developing a woodlot. If 9 tree seedlings are planted per row and there are 248 rows in the woodlot. How many trees will be in the woodlot altogether?

$$248 \times 9 \text{ trees}$$

	R	H	T	U
x		2	4	8
		4	7	9
	2	2	3	2

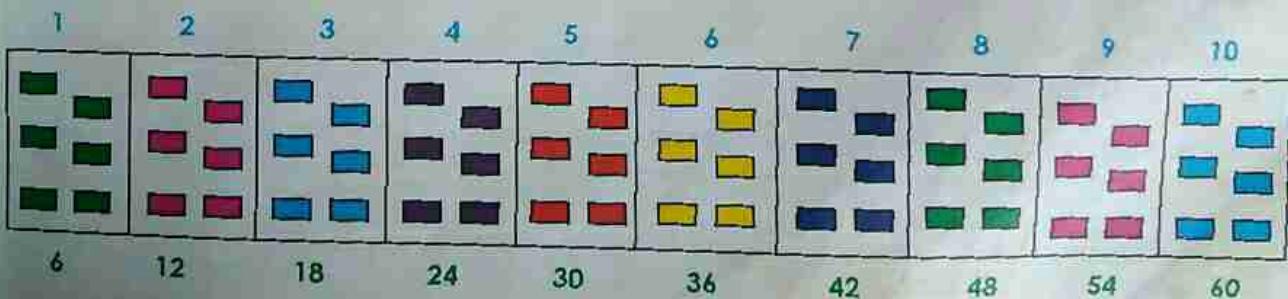


Hence, there are 2 232 trees in the woodlot.

Practice exercise 2

1. A farmer planted 8 rows of mealie seeds. There were 65 seeds in each row. How many seeds did she plant?
2. A set of kitchen chairs costs \$257. What is the cost of 6 sets?
3. What is product of 284 and 5?
4. One spider has 8 legs. How many legs has a mother spider and 24 baby spiders?
5. In a school library there are 7 shelves with 82 books on each. How many books are there in the library?
6. 3 boys and 5 girls each saved with \$9.00 for their holidays. How much was this altogether?
7. A bus has seats for 66 passengers. How many passengers will there be in 8 such buses?
8. A tomato plant produces 619 tomatoes in a season. There are 6 plants in a bed. How many tomatoes are produced in this bed in one season?
9. There are 780 people living with HIV and AIDS at Dorowa Mine. In one week each of them gets 2 ARVs. Altogether they need how many ARVs?
10. Gunde primary school plants 908 plants on every tree planting day every year for 5 years. Altogether the school planted how many trees?

Division



Example

a) $36 \div 6 = 6$

b) $21 \div 6 = 3 \text{ r } 3$

c) $58 \div 6 = 9 \text{ r } 4$

Long division**Example**

$$\begin{array}{r} 34 \\ 7 \overline{)238} \\ -21 \\ \hline 28 \\ -28 \\ \hline 0 \end{array}$$

Hence, $238 \div 7 = 34$

$$\begin{array}{r} 58 \text{ r } 3 \\ 4 \overline{)235} \\ -20 \\ \hline 35 \\ -32 \\ \hline 3 \end{array}$$

Hence, $235 \div 4 = 58 \text{ r } 3$ **Practice exercise 3****Do these.**

1. $5 \overline{)135\text{cm}}$ 2. $3 \overline{)257\text{cm}}$ 3. $8 \overline{)349\text{m}^3}$ 4. $7 \overline{)563\text{m}}$ 5. $5 \overline{)975\text{g}}$ 6. $6 \overline{)1899\text{g}^3}$
 7. $7 \overline{)6451\text{kg}}$ 8. $8 \overline{)7985\text{kg}}$ 9. $6 \overline{)9909\text{ml}}$ 10. $5 \overline{)8974\text{l}}$ 11. $7 \overline{)4528\text{m}}$ 12. $3 \overline{)6349\text{m}^3}$

Division stories**Example**

4 405 mangoes are packed in 8 cartons. How many mangoes are in each carton? Are there any mangoes left?

$$\begin{array}{r} 550 \\ 8 \overline{)4405} \\ -40 \\ \hline 40 \\ -40 \\ \hline 5 \end{array}$$

Hence, there are 550 mangoes in each carton. 5 mangoes are left over.

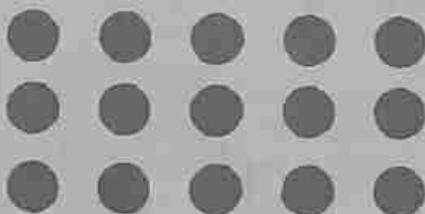
Practice exercise 4

Do the following.

- Share \$104 among 8 men.
- The cost of 7 ploughs was \$154. What is the cost of one?
- There are 270 children at a school. They are put in 6 equal classes. How many children in each class?
- A father shares 342 cents equally among his six children. How many cents does each child get?
- Paul runs round a field 5 times. He runs 2 345 metres. What is the distance around the field?
- A car uses 1 litre of petrol to go 8 kilometres. How many litres of petrol does it use to go 4 320 km?
- 4 480 bags of fertiliser have to be shared equally among 8 farmers. How many will each receive?
- 8 girls have to receive equal shares of a sum of money amounting to \$8 080. How much will each girl receive?
- Eight bulls of cattle, priced the same, cost \$9 600. How much did each bull cost?
- Three thousand and twenty-eight kilogrammes of maize have to be put into eight silos of the same size. How much will each silo contain?
- A cricket team scored 3 440 runs. Only eight batsmen scored, and each scored exactly the same number of runs. How many runs did they each score?
- 8 scotch carts cost \$2 720.00. What was the cost of one scotch cart?

Factors

The picture shows 15 dots arranged to make a rectangle.



There are three rows of five columns.

$$3 \times 5 = 15$$

When we arrange dots in rectangles we show the factors of numbers. The example shows that the factors of 15 are 3 and 5.

Practice exercise 5

Use your counters and calculators to find the factors of these numbers.

- | | | | | |
|---------|---------|---------|---------|-----------|
| 1. 20 | 2. 36 | 3. 40 | 4. 45 | 5. 54 |
| 6. 64 | 7. 72 | 8. 81 | 9. 132 | 10. 225 |
| 11. 360 | 12. 540 | 13. 720 | 14. 960 | 15. 1 000 |

End of unit assessment

Multiple choice

1. $8 \times 5 = \square$
A. 3 B. 13 C. 32 D. 40
2. How many sets of 6 are in 96?
A. 8 B. 16 C. 10 D. 12
3. $7 \times 8 = \square$
A. 1 B. 15 C. 56 D. 65
4. $78 \times 8 = \square$
A. 70 B. 86 C. 564 D. 624
5. Share \$1 264 among 7 people. How much money is left over?
A. \$170 B. \$175 C. \$4 D. \$5
6. 880 metres divided by 8 = \square
A. 110 B. 108 C. 101 D. 100
7. $509 \times 9 = \square$
A. 5 099 B. 3 454 C. 4 500 D. 4 581
8. 5360 kg divided by 4 = \square
A. 1 720 B. 1 340 C. 1 360 D. 5 360
9. Find the product of 128 by 6 = \square
A. 720 B. 768 C. 876 D. 786
10. When dividing 28 by 7, 28 is the _____.
A. product B. quotient C. divisor D. dividend

[10 marks]

Structured questions

1. $781 \times 8 = 62 \square 8$ [1]
2. A bus can carry 72 passengers. How many passengers can 7 buses carry? [1]
3. A woman earns \$281 a week. How much does she earn in 4 weeks? [1]
4. There are 209 metres in a roll of cloth. How many metres are there in 9 rolls of the same size? [1]
5. 8 goats cost \$1 112. Find the cost of each goat. [1]
6. Find the quotient and remainder on dividing 3607 by 4. [1]
7. For a prize giving a janitor arranges 1 096 seats equally in 8 rows. How many chairs are there in each row? [1]
8. Sikhumbuzo planted 63 cabbages. She planted them in rows of 7, how many rows did she plant? [1]
9. A 10 litre tin was used to fill a 200 litre drum with water. How many tinsfuls filled the tank? [1]
10. Chegutu District Hospital gives out 3 600 ARV tablets to HIV positive patients in 5 days, how many ARV tablets does the hospital give out in one day? [1]

Unit 11

Length

Objectives

You should be able to:

1. approximate lengths using spans and paces.
2. measure lengths to the nearest millimeter (mm), centimeter (cm) or metre (m).
3. convert units of length (mm, cm and m).

Flashback

Use 30cm and 100cm (1m) rulers to measure objects within the environment.



Key words

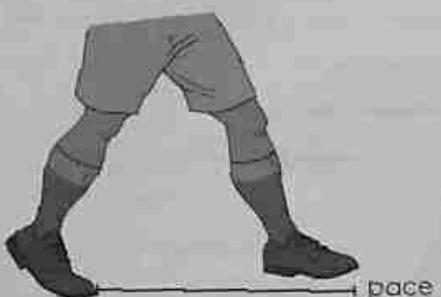
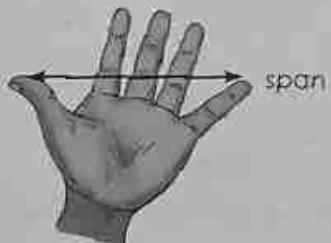
estimate

zigzag

accurate

reach

Span



A span is the distance measured by a human hand, from the tip of the thumb to the tip of the little finger.

A pace is a single step taken when walking or running.

Activity 1

Pair work

Measure the length of your desk using your span.

Ask your friend for their measurement of the desk length.

Measure the length of your classroom using your pace.

Ask your friend for their measurement of the classroom length.

Compare your figures with other learners.

What did you notice?

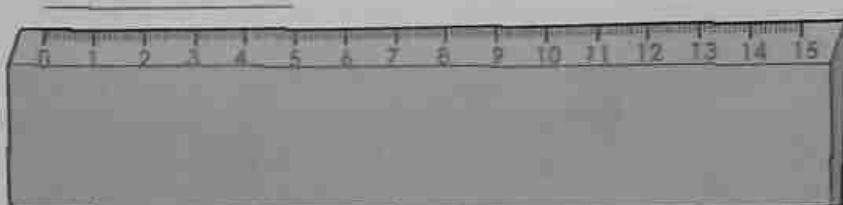
Fact file



Measuring length using pace and span varies with the person.
Different people have different paces and spans.
To get a more accurate measurement we need something standard.

Centimetre (cm)

We use a centimetre to measure length. Look at the ruler below.



Centimetres are a standard way of measuring length. The line above is 5 cm.

Practice exercise 1

Measure the following lines in cm.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Measure the following zig zag lines in cm.

7. _____

8. _____

9. _____

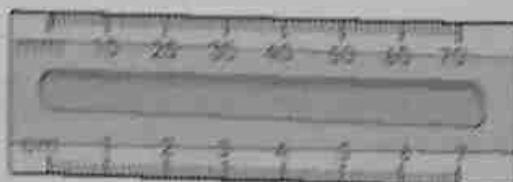
10. _____

Millimeters (mm)

Look at the picture below.

$$1\text{cm} = 10\text{mm}$$

We have been measuring to the nearest cm. To get a more accurate measurement we can use millimeters. Each centimeter is divided into 10 millimeters. The picture shows a ruler marked in cm and mm.



Example

- a) Convert 6cm to millimetres.

$$6 \times 10 = 60\text{mm}$$

- b) Convert 80mm to cm

$$80 \div 10 = 8\text{cm}$$

Practice exercise 2

Convert cm to mm.

1. $5\text{cm} = \boxed{}$ 2. $7\text{cm} = \boxed{}$ 3. $9\text{cm} = \boxed{}$ 4. $12\text{cm} = \boxed{}$ 5. $25\text{cm} = \boxed{}$
6. $36\text{cm} = \boxed{}$ 7. $48\text{cm} = \boxed{}$ 8. $50\text{cm} = \boxed{}$ 9. $67\text{cm} = \boxed{}$ 10. $82\text{cm} = \boxed{}$

Convert mm to cm.

11. $10\text{mm} = \boxed{}$ 12. $700\text{mm} = \boxed{}$ 13. $40\text{mm} = \boxed{}$ 14. $540\text{mm} = \boxed{}$ 15. $360\text{mm} = \boxed{}$

Metre (m)

We use a centimetre to measure length. But bigger lengths like the classroom length and curtains requires a greater standard which is a metre.

Activity 2

The teacher will show you a metre rule.

In groups of 4 measure the length of the classroom.

We can convert metres to centimetres and vice versa.

Example

- a) Convert 3m to cm

$$3\text{m} = 3 \times 100 = 300\text{cm}$$

- b) Convert 500cm to m

$$5000\text{cm} \div 100 = 5\text{m}$$

Practice exercise 3

Convert metres to cm:

1. $7\text{ m} = \square$ 2. $12\text{ m} = \square$ 3. $27\text{ m} = \square$ 4. $9\text{ m} = \square$ 5. $18\text{ m} = \square$ 6. $56\text{ m} = \square$

Convert cm to m:

7. $400\text{ cm} = \square$ 8. $600\text{ cm} = \square$ 9. $1\,000\text{ cm} = \square$
 10. $300\text{ cm} = \square$ 11. $100\text{ cm} = \square$ 12. $200\text{ cm} = \square$

Extra work



$1\text{ m} = 100\text{ cm} = 1\,000\text{ mm}$

Convert m to mm:

13. $8\text{ m} = \square$ 14. $4\text{ m} = \square$ 15. $9\text{ m} = \square$

Operating with measures

Examples

1. $7\text{ cm } 8\text{ mm} + 4\text{ cm } 3\text{ mm}$ 2. $16\text{ cm } 4\text{ mm} - 5\text{ cm } 6\text{ mm}$
 3. $5\text{ cm } 3\text{ mm} \times 4$ 4. $18\text{ cm } 3\text{ mm} \div 3$

Solutions

1.

cm mm	
7	8
+	4
12	1

2.

cm mm	
16	4
-	5
10	8

3.

cm mm	
5	3
*	4
21	2

4.

$$\begin{array}{r} 6\text{ cm } 1\text{ mm} \\ 3 \overline{)18\text{ cm } 3\text{ mm}} \end{array}$$

Practice exercise 4

1.

cm mm	
3	7
+	4

2.

cm mm	
6	2
+	2

3.

cm mm	
1	8
+	1

4.

cm mm	
3	6
+	3

5.

cm mm	
3	0
-	1

6.

cm mm	
2	7
-	1

7.

cm mm	
6	5
-	4

8.

cm mm	
8	4
-	3

9.	cm	mm
x	3	8
x	3	

10.	cm	mm
x	4	7
x	5	

11.	cm	mm
x	6	6
x	7	

12.	cm	mm
x	1	9
x	6	

13. $\begin{array}{r} \text{cm} \quad \text{mm} \\ 6\overline{)7} \quad 2 \end{array}$

14. $\begin{array}{r} \text{cm} \quad \text{mm} \\ 4\overline{)6} \quad 8 \end{array}$

15. $\begin{array}{r} \text{cm} \quad \text{mm} \\ 8\overline{)11} \quad 2 \end{array}$

16. $\begin{array}{r} \text{cm} \quad \text{mm} \\ 7\overline{)12} \quad 6 \end{array}$

Extra work



Try these.

1.	m	cm
x	4	12
x	3	18
+	1	90

2.	m	cm
x	1	20
x	3	38
+	4	52

3.	m	cm
x	1	60
x	2	70
+	4	95

4.	m	cm
x	4	75
x	2	25
+	1	50

5.	m	cm
x	3	20
x	1	50

6.	m	cm
x	4	75
x	2	80

7.	m	cm
x	6	23
x	1	99

8.	m	cm
x	3	51
x	1	84

9.	m	cm
x	2	40
x	3	

10.	m	cm
x	6	50
x	7	

11.	m	cm
x	3	75
x	4	

12.	m	cm
x	2	28
x	8	

13. $\begin{array}{r} \text{m} \quad \text{cm} \\ 2\overline{)3} \quad 10 \end{array}$

14. $\begin{array}{r} \text{m} \quad \text{cm} \\ 3\overline{)8} \quad 25 \end{array}$

15. $\begin{array}{r} \text{m} \quad \text{cm} \\ 5\overline{)18} \quad 20 \end{array}$

16. $\begin{array}{r} \text{m} \quad \text{cm} \\ 8\overline{)10} \quad 72 \end{array}$

Number stories

Example

Mrs Gomwe bought 4 metres of cloth and she used 2m 50cm to make her daughter's dress.
How many metres of cloth were left?

	m	cm
x	4	00
-	2	50

Hence, 1m 50cm was left over

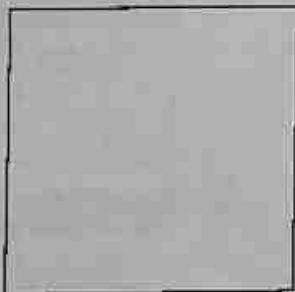
Practice exercise 5

Do the following.

1. A piece of string 36 cm was cut into 4 equal parts. How many cm long was each piece?
2. Takudzwa had two jumps: 2 m 48 cm and 2 m 52 cm. What was the total of his two jumps?
3. Linda measured a patch to be 8 m 75 cm. How long is it to the nearest metre?
4. A hedge was 7m 56cm long. If father cut down 4m to built a wall, how much hedge is left?
5. $8\text{m } 43\text{cm} \times 5$

End of unit assessment

Multiple choice

1. $1\text{ cm} = \square\text{ mm}$ A. 1 B. 10 C. 20 D. 100
2. $1\text{ m} = \square\text{ cm}$ A. 50 B. 60 C. 75 D. 100
3. $1\text{ m} = \square\text{ mm}$ A. 1 B. 10 C. 100 D. 1 000
4. $80\text{ mm} = \square\text{ cm}$ A. 8 B. 10 C. 80 D. 100
5. $5\text{ cm} = \square\text{ mm}$ A. 5 B. 10 C. 50 D. 100
6. $700\text{ cm} = \square\text{ m}$ A. 7 B. 70 C. 100 D. 100
7.  The perimeter of the square is
A. 8cm B. 16 cm C. 24 cm D. 32 cm
8.

	4	25
+	5	13

 A. 9 m 25 cm B. 8 m 28 cm C. 9 cm 13cm D. 9 cm 28 cm
9. $350\text{mm} \times 3 = \square\text{ mm}$ A. 1 050 B. 1 000 C. 150 D. 100
10. 1 500 m divided by 5 A. 300 B. 750 C. 350 D. 150 [10 marks]

Structured questions

1. A race is 400 m long. Ratidzo fell after she had run $\frac{3}{4}$ of the race. How far from the finish was she when she fell? [1]
2. $595\text{ cm} = \square\text{ m } \square\text{ cm}$ [2]
3. $10\text{ m} = \square\text{ mm}$ [2]
4. $560\text{ mm} = \square\text{ cm}$ [2]
5. $256\text{ cm} = \square\text{ m } \square\text{ cm}$ [2]

Put the correct sign $>$, $<$ or $=$.

6. $6\text{m } 6\text{ cm} \square 660\text{ cm}$ [2]
7. $4\text{ cm } 50\text{ mm} \square 450\text{ mm}$ [2]
8. One side of a square is 7 cm. What is the perimeter of the square? [1]
9. $320\text{ mm} \times 5 = \square\text{ mm}$ [2]
10. $720\text{ m} + 6 = \square\text{ m}$ [2]

Unit 12

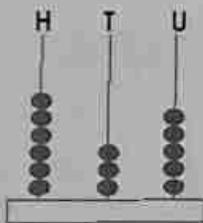
End of term 1 assessment

Paper 1: Multiple choice

Instructions to candidates.

- a) Answer **all** questions.
- b) If more than one answer is written for a question, the answer will be regarded as wrong.

1.



Which number is represented by this abacus?

- A. 635 B. 535 C. 536 D. 435

2. 472 rounded off to the nearest 100 =

- A. 470 B. 370 C. 500 D. 372

3. How many millimetres are there in a 1cm?

- A. 2 B. 5 C. 10 D. 4

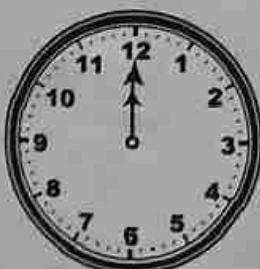
4. + 95 = 136

- A. 41 B. 51 C. 49 D. 39

5. Multiplication is _____.

- A. repeated addition
- B. repeated subtraction
- C. subtraction
- D. adding any two numbers

6. The time shown on this clock is _____.



- A. 12 O'clock B. 7 O'clock C. half seven D. half twelve

7. $\text{XXXVI} = \square$ in arabic numerals.

- A. 43 B. 26 C. 36 D. 31

8. $\text{XLVI} = \square$ in arabic numerals.

- A. 46 B. 45 C. 49 D. 56

9. $14 \div 7 = \square$

- A. 2 B. 3 C. 7 D. 14

10. 274 can be written as

- A. $2 + 7 + 4$ B. $200 + 70 + 4$
C. $200 + 7 + 4$ D. $20 + 7 + 4$

11. A man earns \$ 105. He spends \$60 on food and \$35 on clothes. How much does he save?

- A. \$10 B. \$15 C. \$25 D. \$95

12. Fill in the missing sign $807 \square 780$

- A. $>$ B. $<$ C. $=$ D. $+$

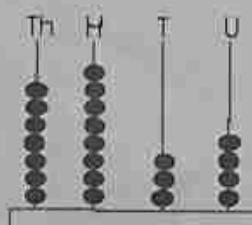
13. What is the length of the line below?

- A. 10cm B. 5cm C. 6cm D. 15cm

14. $494 - 176 = \square$

- A. 381 B. 318 C. 831 D. 183

15. The abacus shows _____.



- A. 8734 B. 4278 C. 7834 D. 3874

16. A choir stood in rows. There were 23 children in each row and 6 rows altogether. How many children were in the choir?

- A. 78 B. 108 C. 29 D. 138

17. The sum of 2 425 and 3 414 is _____.

- A. 9385 B. 5839 C. 7249 D. 8379

18. The difference in length between 2 301cm and 1 112cm is _____.

- A. 1413cm B. 1189cm C. 1200cm D. 1100cm

19. Complete the sequence: 543 553 563 \square \square

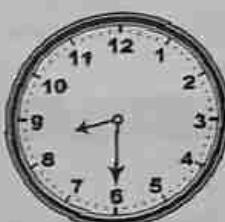
- A. 573 583 B. 533 523
C. 564 565 D. 570 580

20. The clock faces tell us the time a lesson starts and the time it ended. How long did it last?

STARTS



ENDS



- A. 1 hour B. 15 minutes C. 30 minutes D. 3 hours

21. A lady bought $3\frac{1}{2}$ litres of milk every day for a week. How many litres of milk did she buy?

- A. $21\frac{1}{2}$ B. $15\frac{1}{2}$ C. $10\frac{1}{2}$ D. $13\frac{1}{2}$

22. $550 + 550 = \square$ 1100

- A. > B. < C. = D. ×

23.

	R	T	U
	6	0	0
+	3	5	0

- A. 300 B. 200
C. 950 D. 900

24.

	D	H	T	U
	6	4	8	5
-	1	3	7	6

- A. 5 300 B. 5 200
C. 5 109 D. 5 110

25. Four children share 12 oranges equally. How many oranges does each one get?

- A. 4 B. 3 C. 5 D. 12

26. Convert 19 to roman numerals.

- A. XX B. IXX C. XIX D. XXI

27. A tailor makes 8 shirts per day. How many shirts does she make in a week?

- A. 1 B. 56 C. 42 D. 15

28. $371 \times 5 = \square$

- A. 1 585 B. 1 255 C. 1 855 D. 400

Using the table answer 29, 30 and 31

Name of school	No. of pupils
Gobvu	377
Svosve	261
Gudo	383

29. How many learners are in the three schools altogether?

- A. 819 B. 981 C. 898 D. 1 021

30. Which school has the least number of learners?

- A. Gobvu B. Svosve C. Gudo D. School

31. What is the difference between the number of children at Gudo and those at Gobvu school?

- A. 6 B. 720 C. 500 D. 1 000

32.

	H	B	I	D
-	7	2	3	5
	2	1	3	7

- A. 5 069 B. 5 096 C. 5 098 D. 5 609

33. $296 + 124 + 345 = \square$

- A. 765 B. 766 C. 775 D. 755

34. If you share 3 332 sweets among 7 classes, What does each class get?

- A. 764 sweets B. 476 sweets C. 728 sweets D. 742 sweets

35. Which one of the following is a factor 32?

- A. 3 B. 7 C. 8 D. 6

36.

	/	m/l
	4	58
+	1	30

- A. 5l 88ml B. 6l 88ml C. 6l 78ml D. 5l 78ml

37. 8 721 rounded off to the nearest 100.

- A. 8 720 B. 8 700 C. 9 000 D. 8 000

38. 642 rounded off to the nearest 100 is _____.

- A. 700 B. 600 C. 650 D. 750

39. 98 cm in millimetres is _____.

- A. 98mm B. 908mm C. 980mm D. 809mm

40. The value of nine in 9 806 is _____.

- A. 900 B. 9 000 C. 90 D. 9

41. XXIX \square XXXI

- A. > B. = C. + D. <

42. $75 \div 8 = \square r \square$

- A. 3 r 9 B. 9 r 3 C. 9 r 5 D. 3 r 7

43.

	H	B	I	D
	2	1	9	
x				7

- A. 5 133 B. 1 533 C. 1 053 D. 5 033

44.

	M	T	U
-	7	1	2
	3	4	9

- A. 633 B. 363 C. 336 D. 663

45. What is the product of 111 and 4?

- A. 433 B. 444 C. 443 D. 343

46. How many weeks are in 35 days?

- A. 5 B. 6 C. 4 D. 2

47. In a town there are 3 627 women and girls and 3 496 men and boys. How many people live in the town altogether?

- A. 6 132 B. 7 123 C. 6 723 D. 7 132

48. A hundred years is called _____.

- A. decade B. month C. century D. week

49. $2\overline{)248}$

- A. 216 B. 124 C. 122 D. 123

50. How many centimetres are in 1 metre?

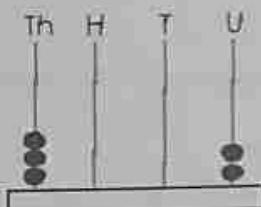
- A. 10cm B. 100cm C. 1 100cm D. 1cm

Paper 2: Structured questions

Section A (30 marks)

Answer all questions in this section.

1. a) Write in words 708. [1]
b) Write six hundred and forty-two in figures. [1]
c) Write two thousand in figures. [1]
2. a) What number is shown on the picture below? [1]



- b) Fill in the missing number. [1]
137 147 167 177
- c) Expand 3 699. [1]
3. a) What is the value of the underlined digit? 694 [1]
b) How many place holders are in the number 9 060? [1]
c) Round off 4 120 to the nearest thousand. [1]
4. a) What is the sum of 378 and 493? [2]
b) There are 24 boys and 17 girls in a class. How many learners are in the class altogether? [2]
5. In a school there are 514 learners. 29 are absent. How many learners are present at the school? [2]
6. Find the product of 305 and 2. [2]
7. a) $7\ 342 + 5\ 915 = \square$ [2]
b) $9\ 457 - 2\ 745 = \square$ [2]
c) $8\ 000 + 400 + 20 + 3 = \square$ [2]
8. Share 20 sweets among 5 children. Each child gets how many sweets? [2]
9. a) $\frac{1}{2}$ of 100 is _____. [2]
b) \$749 to the nearest hundred = \$_____. [1]

10.

	1	2	3	4	5
x					6
	2	<input type="text"/>	4	<input type="text"/>	

Section B (20 marks)

Answer any four questions in this section.

11. Convert the following numbers to roman numerals.

- a) 17
- b) 28
- c) 15
- d) 50
- e) 39

[5]

12. a) Find the sum of \$1 053 and \$325.

[2]

- b) How many millimetres make a cm?

[1]

- c) There are 258 pens in one box and 340 pens in another box. What is the difference?

[2]

13. a) Find the sum of 836 and 649?

[2]

- b) Tom had 39 books. He gave 16 to the community. How many had he left?

[2]

- c) What number is 19 less than 59?

[1]

14.



- a) What is the time? [1]

- b) $\frac{1}{4}$ of an hour is _____ minutes. [2]

- c) How many minutes are there in an hour? [1]

- d) Share a bag of 16 oranges amongst 4 children? [1]

15. 124 342 615 424

Arrange the numbers above in

- a) ascending order [1]
- b) descending order. [1]

Fill in using the correct sign (>, < or =)

- c) 124 142 d) 1342 1432 e) 521 142 [3]

First term: Project 1

My home

Your home is the most special place in your life. It is where you and your family live. It might be in a village or it might be in a town. Wherever it is, it is your home.



Find out by asking questions and by measuring, things about your home and the people who live there. Then copy and complete the sentences below.

1. My home is in _____ (name). It is a _____ (town/village). It is _____ kilometers from _____ (Harare or Bulawayo). I live there with my (father/mother) _____ (brothers) and _____ (sisters).
My father was born in _____ (year) and was _____ years old on his last birthday. My mother was born in _____ and was _____ years old in her last birthday. My father was _____ years old when I was born.
2. Now write about the names of your brothers and sisters, the years in which they were born and their ages at their last birthdays.
3. My father works as a _____. He has to travel _____ kilometers to work every work day. I have to travel _____ kilometers to school.
4. The biggest room in my home is _____ metres long and _____ metres wide.

Or

The hut we live in is _____ metres round the outside.

5. The biggest jug or container in our home holds _____ litres of water.
6. The heaviest person in my family is my _____. He or she is _____ kilograms.
7. The lightest person is _____. He or she is _____ kilograms.
8. The sun rises about _____ o'clock in the _____. It sets about _____ o'clock in the evening at home.
9. I go to bed at _____ o'clock and get up at _____ o'clock in the morning.
10. I spend _____ hours at school every school day.

Unit 13

Proper fractions

Objectives

You should be able to:

1. read and write fractions in numerals
2. interpret diagrams representing fractions
3. draw, name and shade fractions on diagrams
4. reduce fractions to lowest terms
5. use fractions and number strips to find equivalent fractions
6. compare fractions
7. arrange fractions in ascending or descending order.

Flashback

The word fraction means part of a whole.
Fractions in mathematics means Equal parts of a whole.



Key words

mathematics numeral equivalent

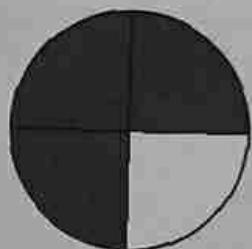
Writing fractions in numerals

A fraction is made up of the numerator and the denominator.

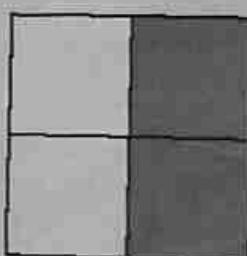
The numerator is the number of parts shaded.

The denominator is the number of parts the shape is divided into.

Examples



$$= \frac{3}{4}$$

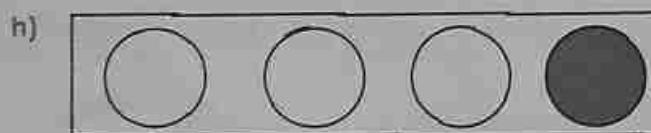
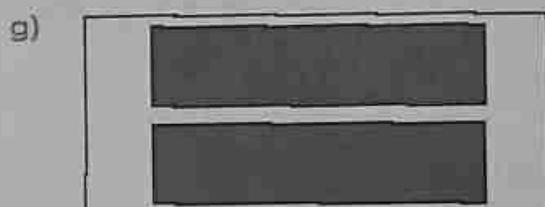
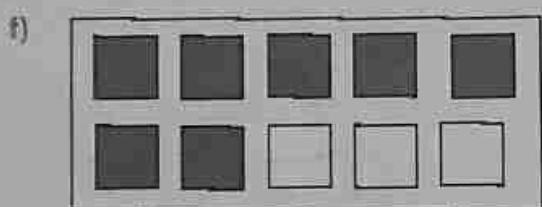
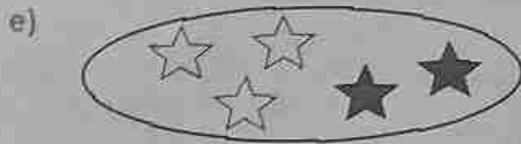
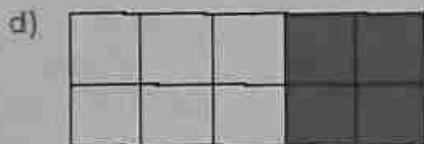
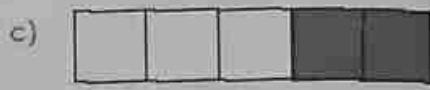
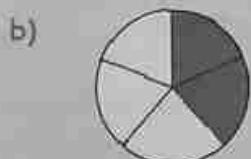


$$= \frac{1}{4}$$

Practice exercise 1

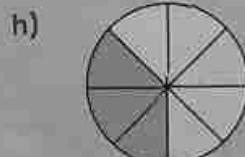
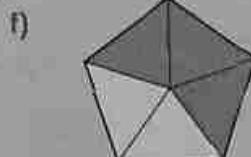
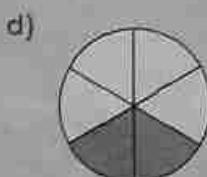
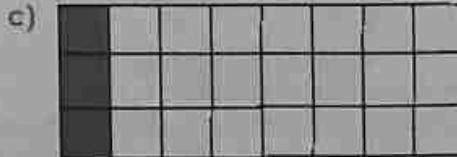
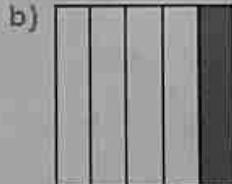
Do these.

1. What fraction of the pictures is shaded?
2. What fraction of the pictures is not shaded?



Practice exercise 2

1. What fraction of the pictures is shaded?
2. What fraction of the pictures is not shaded?



Reducing fractions to its lowest terms

Example

Reduce $\frac{3}{6}$ to its lowest terms.

Solution

$$\frac{3}{6} = \frac{3+3}{6+3} = \frac{1}{2}$$

Practice exercise 3

Reduce the following fractions to its lowest terms.

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

2. $\frac{3}{9}$

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

4. $\frac{5}{10}$

5. $\frac{4}{6}$

6. $\frac{2}{10}$

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

8. $\frac{8}{10}$

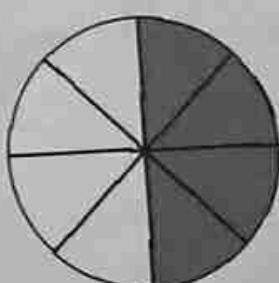
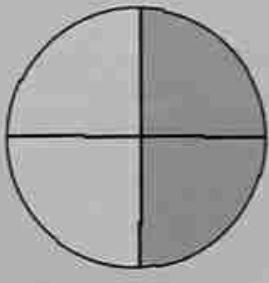
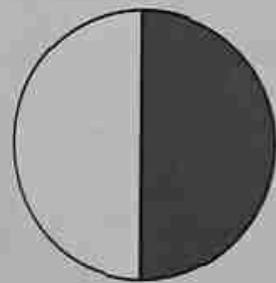
9. $\frac{6}{10}$

10. $\frac{6}{8}$

11. $\frac{6}{9}$

12. $\frac{10}{10}$

Equivalent fractions



The shapes show that $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$.

Equivalent fractions are fractions with the same value but different numerators and denominators.

Look at the fraction chart below.

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

Practice exercise 4

Fill in the missing numerals.

$$1. \frac{2}{8} = \square$$

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

$$3. \frac{5}{8} = \square$$

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

Fill in the missing signs ($>$, $<$, $=$).

$$5. \frac{1}{2} \square \frac{3}{4}$$

$$6. \frac{1}{4} \square \frac{1}{2}$$

$$7. \frac{2}{4} \square \frac{1}{2}$$

$$8. \frac{3}{4} \square \frac{1}{2}$$

$$9. \frac{3}{8} \square \frac{1}{2}$$

$$10. \frac{3}{4} \square \frac{3}{8}$$

$$11. \frac{8}{8} \square \frac{2}{2}$$

$$12. \frac{7}{8} \square \frac{3}{4}$$

Look at the fraction charts below.

1 whole							
$\frac{1}{3}$				$\frac{1}{3}$			
$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$	
$\frac{1}{9}$							

Practice exercise 5

Fill in the missing sign: $>$, $<$, $=$.

$$1. \frac{1}{3} \square \frac{1}{9}$$

$$2. \frac{2}{3} \square \frac{2}{9}$$

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

$$4. \frac{2}{6} \square \frac{2}{9}$$

$$5. \frac{5}{9} \square \frac{5}{6}$$

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

$$7. \frac{1}{6} \square \frac{1}{9}$$

$$8. \frac{3}{9} \square \frac{3}{6}$$

$$9. \frac{4}{6} \square \frac{4}{9}$$

$$10. \frac{5}{6} \square \frac{5}{9}$$

Look at the chart again.

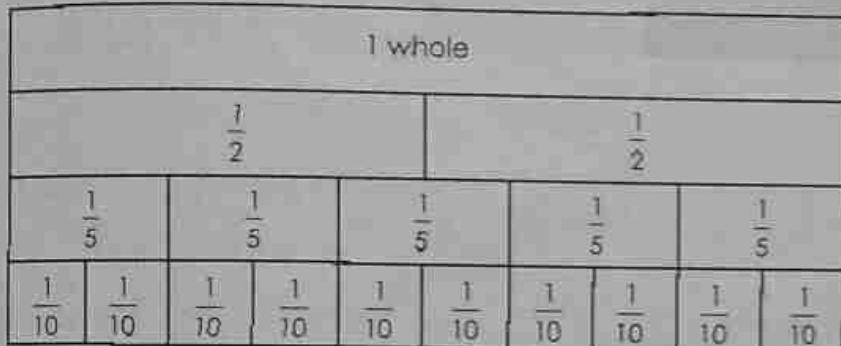
Arrange these fractions in order. Start with the largest.

11. $\frac{1}{9}$ $\frac{1}{3}$ $\frac{1}{6}$

12. $\frac{2}{3}$ $\frac{2}{6}$ $\frac{2}{9}$

Practice exercise 6

Look at the fraction chart below.



Fill in the missing numerals.

1. $\frac{1}{5} = \frac{\square}{10}$ 2. $\frac{1}{2} = \frac{\square}{10}$ 3. $\frac{6}{10} = \frac{\square}{5}$ 4. $\frac{4}{5} = \frac{\square}{10}$

Arrange these fractions in order.

a) Start with the largest.

b) Start with the smallest.

5. $\frac{2}{5}$ $\frac{3}{10}$ $\frac{1}{2}$ 6. $\frac{7}{10}$ $\frac{4}{10}$ $\frac{9}{10}$ 7. $\frac{3}{5}$ $\frac{1}{2}$ $\frac{7}{10}$ 8. $\frac{1}{5}$ $\frac{1}{2}$ $\frac{1}{10}$

End of unit assessment

Multiple choice



1. What fraction is shaded?

A. $\frac{4}{10}$

B. $\frac{5}{7}$

C. $\frac{3}{7}$

D. $\frac{4}{5}$

2. Which shape shows $\frac{3}{5}$.

- A. 
- B. 
- C. 
- D. 

3. $\frac{8}{10}$ is equivalent to _____.

- A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{4}{5}$ D. $\frac{4}{10}$

4. $\frac{5}{10}$ in its lowest terms is _____.

- A. $\frac{2}{4}$ B. $\frac{2}{5}$ C. $\frac{1}{10}$ D. $\frac{1}{2}$

5. $\frac{6}{10}$ in its lowest terms is _____.

- A. $\frac{3}{10}$ B. $\frac{1}{2}$ C. $\frac{3}{5}$ D. $\frac{4}{5}$

6. Kundai had \$10, she spent \$2. What fraction of her money did she spend?

- A. $\frac{2}{4}$ B. $\frac{2}{5}$ C. $\frac{1}{5}$ D. $\frac{4}{5}$

7. Ellen had a piece of ribbon 10 m long. She cut off 4 m. What fraction did she cut off?

- A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. $\frac{4}{5}$

8. What fraction did she have left?

- A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. $\frac{4}{5}$



9. What is the fraction shown on the picture?

- A. $\frac{4}{5}$ B. $\frac{7}{10}$ C. $\frac{3}{10}$ D. $\frac{1}{2}$

10. Put the correct sign to make the sentence correct.

$$\frac{6}{10} \square \frac{1}{2}$$

A. >

B. <

C. =

D. ?

(10 marks)

Structured questions

1. Fill in the missing sign >, < or =.

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

b) $\frac{2}{4} \square \frac{4}{8}$

c) $\frac{2}{4} \square \frac{3}{8}$

d) $\frac{5}{10} \square \frac{5}{5}$

e) $\frac{3}{5} \square \frac{8}{10}$ [5]

2. Arrange these fractions in order. Start with the smallest. $\frac{8}{10}, \frac{1}{4}, \frac{1}{2}$ [1]

3. Arrange these fractions in order. Start with the largest. $\frac{2}{4}, \frac{2}{8}, \frac{2}{2}$ [1]

4. $\frac{8}{10} = \square$ in lowest terms. [1]

5. $\frac{2}{8} = \square$ in lowest terms. [1]

6. $\frac{6}{10} = \square$ in lowest terms. [1]

Unit 14

More proper fractions

Objectives

You should be able to:

1. read and write fractions in numerals.
2. find equivalent fractions.
3. compare fractions.
4. reduce fractions to the lowest terms.

Flashback

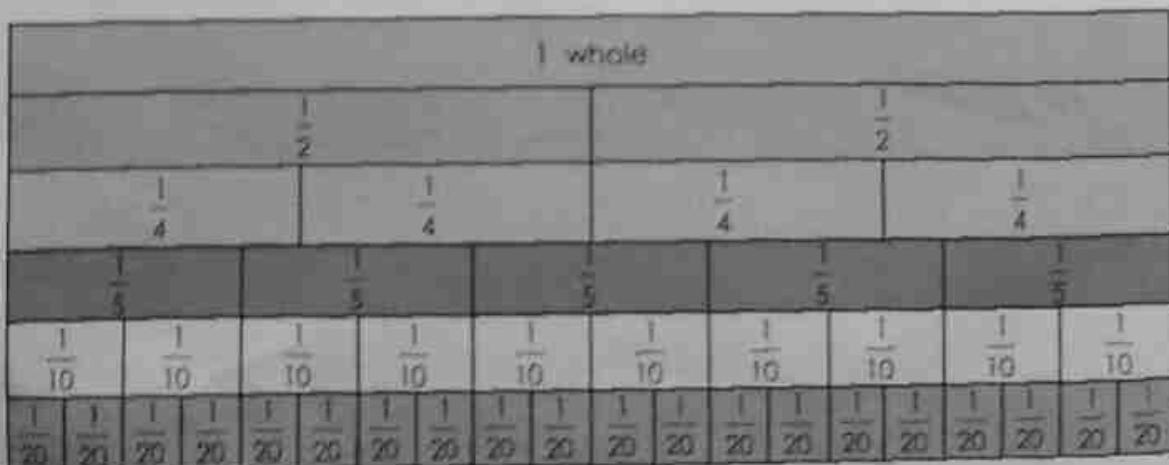
Say the fractions not shaded to your friend.



Key words

numerator denominator proper fraction

Twentieth



Equivalent fractions

Examples

Using the fraction chart, find the missing number.

$$1. \frac{3}{4} = \frac{\square}{20}$$

$$2. \frac{2}{5} = \frac{\square}{20}$$

Solution

$$1. \frac{3}{4} = \frac{15}{20}$$

$$2. \frac{2}{5} = \frac{8}{20}$$

Practice exercise 1

Using the fraction chart, fill in the missing numbers.

$$1. \frac{1}{2} = \frac{\square}{20}$$

$$2. \frac{1}{4} = \frac{\square}{20}$$

$$3. \frac{1}{5} = \frac{\square}{20}$$

$$4. \frac{1}{10} = \frac{\square}{20}$$

$$5. \frac{3}{5} = \frac{\square}{20}$$

$$6. \frac{2}{4} = \frac{\square}{20}$$

$$7. \frac{7}{10} = \frac{\square}{20}$$

$$8. \frac{2}{2} = \frac{\square}{20}$$

$$9. \frac{3}{10} = \frac{\square}{20}$$

$$10. \frac{5}{10} = \frac{\square}{4}$$

$$11. \frac{16}{20} = \frac{\square}{5}$$

$$12. \frac{18}{20} = \frac{\square}{10}$$

Practice exercise 2

Using the fraction chart, fill in the missing signs ($>$, $<$, $=$).

$$1. \frac{17}{20} \square \frac{3}{5}$$

$$2. \frac{1}{20} \square \frac{1}{4}$$

$$3. \frac{5}{10} \square \frac{10}{20}$$

$$4. \frac{1}{2} \square \frac{3}{4}$$

$$5. \frac{1}{2} \square \frac{16}{20}$$

$$6. \frac{13}{20} \square \frac{7}{10}$$

$$7. \frac{14}{20} \square \frac{7}{10}$$

$$8. \frac{12}{20} \square \frac{3}{4}$$

$$9. \frac{1}{2} \square \frac{9}{20}$$

$$10. \frac{1}{2} \square \frac{9}{10}$$

$$11. \frac{3}{4} \square \frac{15}{20}$$

$$12. \frac{10}{10} \square \frac{10}{20}$$

Fiftieth



Example 1

1. What fraction is shaded purple?
2. What fraction is shaded blue?
3. What fraction is shaded green?
4. What fraction is not shaded?
5. What fraction is shaded altogether?

Solution:

1. $\frac{5}{50}$ is shaded purple.
2. $\frac{15}{50}$ is shaded blue.
3. $\frac{12}{50}$ is shaded green.
4. $\frac{18}{50}$ is not shaded.
5. $\frac{32}{50}$ is shaded altogether.

Example 2

Fill in the missing number.

$$\frac{4}{5} = \frac{\square}{50}$$

Solution:

Step 1 divide 50 by 5 = 10.

Step 2 multiply 4 by 10 = 40

$$\text{Therefore, } \frac{4}{5} = \frac{40}{50}.$$

Practice exercise 3

Fill in the missing numbers.

1. $\frac{2}{5} = \frac{\square}{50}$

2. $\frac{4}{10} = \frac{\square}{50}$

3. $\frac{1}{2} = \frac{\square}{50}$

4. $\frac{3}{5} = \frac{\square}{50}$

5. $\frac{7}{10} = \frac{\square}{50}$

6. $\frac{2}{5} = \frac{\square}{10} = \frac{\square}{50}$

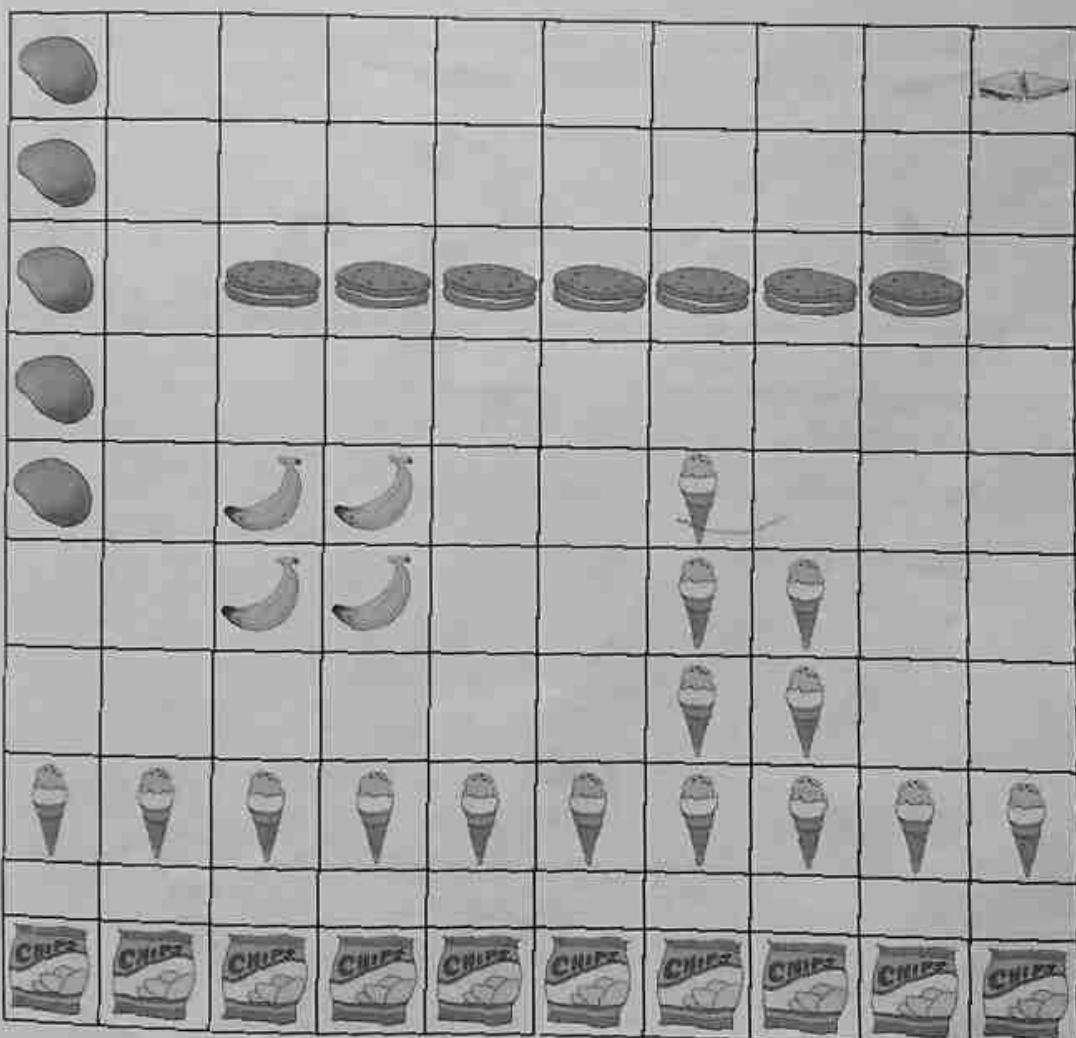
7. $\frac{1}{2} = \frac{\square}{4} = \frac{\square}{20}$

8. $\frac{1}{2} = \frac{\square}{4} = \frac{\square}{20}$

9. $\frac{4}{5} = \frac{\square}{10} = \frac{\square}{20}$

10. $\frac{4}{4} = \frac{\square}{9} = \frac{\square}{10}$

Hundredths



This square has been divided into one hundred small squares. Each small square is one hundredth of the large square, and we write $\frac{1}{100}, \frac{7}{100}$ of the large square is like this

What fraction of the square is like this?

1.



2.



3.



4.



5.



6.



7.



Example

Example

Working

Solution

$$1. \frac{1}{5} = \frac{\square}{10}$$

$$10 \div 5 = 2; 2 \times 1$$

$$\frac{1}{5} = \frac{2}{10}$$

$$2. \frac{1}{5} = \frac{20}{\square}$$

$$20 \div 1 = 20; 20 \times 5$$

$$\frac{1}{5} = \frac{20}{100}$$

Practice exercise 4

Show equivalent fractions by filling in the missing numerals.

$$1. \frac{1}{5} = \frac{\square}{10}$$

$$2. \frac{6}{10} = \frac{3}{\square}$$

$$3. \frac{6}{10} = \frac{3}{\square}$$

$$4. \frac{10}{10} = \frac{\square}{4}$$

$$5. \frac{4}{5} = \frac{\square}{\square}$$

$$6. \frac{1}{2} = \frac{5}{\square}$$

$$7. \frac{4}{\square} = \frac{2}{5}$$

$$8. \frac{4}{4} = \frac{\square}{5}$$

$$9. \frac{5}{5} = \frac{2}{\square}$$

$$10. 1 = \frac{5}{\square}$$

$$11. \frac{1}{2} = \frac{50}{\square}$$

$$12. \frac{1}{4} = \frac{\square}{100}$$

$$13. \frac{2}{5} = \frac{\square}{100}$$

$$14. \frac{7}{10} = \frac{70}{\square}$$

$$15. \frac{3}{4} = \frac{\square}{100}$$

Lowest terms

Example

Express $\frac{20}{100}$ to its lowest terms.

Solution

Find the number that gets into both 20 and 100. We have 10.

$$\frac{20}{100} = \frac{20 \div 10}{100 \div 10} = \frac{2}{10}.$$

But $\frac{2}{10}$ is not in its lowest terms. Find a number that gets into both 2 and 10 without leaving a remainder. We have 2.

$$\frac{2}{10} = \frac{2 \div 2}{10 \div 2} = \frac{1}{5}.$$

$$\text{Hence, } \frac{20}{100} = \frac{2}{10} \approx \frac{1}{5}$$

Practice exercise 5

Fill in the missing numbers.

$$1. \frac{40}{100} = \frac{4}{\square} = \frac{\square}{5}$$

$$2. \frac{60}{100} = \frac{\square}{10} = \frac{3}{\square}$$

$$3. \frac{80}{100} = \frac{\square}{10} = \frac{4}{\square}$$

$$4. \frac{50}{100} = \frac{\square}{10} = \frac{\square}{2}$$

$$5. \frac{25}{100} = \frac{\square}{4}$$

$$6. \frac{75}{100} = \frac{\square}{4}$$

$$7. \frac{1}{5} = \frac{\square}{10} = \frac{20}{\square}$$

$$8. \frac{20}{100} = \frac{\square}{10} = \frac{1}{\square}$$

$$9. \frac{3}{5} = \frac{\square}{10} = \frac{60}{100}$$

$$10. \frac{100}{100} = \frac{10}{\square} = \frac{\square}{5} = \frac{4}{\square} = \frac{\square}{2} \approx \square$$

End of unit assessment

Multiple choice

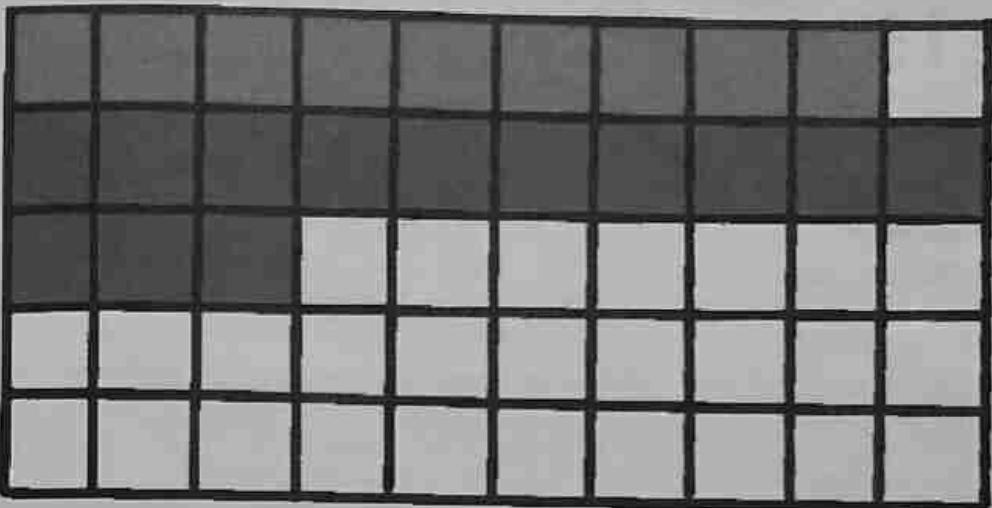
1. $\frac{4}{5} = \frac{\square}{20}$
A. 20 B. 4 C. 16 D. 100
2. $\frac{8}{10} = \frac{\square}{50}$
A. 50 B. 40 C. 5 D. 500
3. $\frac{1}{2} = \frac{\square}{6}$
A. 5 B. 12 C. 3 D. 5
4. $\frac{1}{5} = \frac{10}{\square}$
A. 10 B. 50 C. 5 D. 11
5. $\frac{2}{5} = \frac{\square}{100}$
A. 500 B. 20 C. 2 D. 40
6. $\frac{60}{100} = \frac{\square}{5}$
A. 3 B. 20 C. 4 D. 5
7. $\frac{6}{10} = \frac{\square}{20}$
A. 12 B. 2 C. 60 D. 1200

Fill in the missing sign ($>$, $<$, $=$)

8. $\frac{1}{2} \square \frac{3}{5}$
A. $=$ B. $>$ C. $<$ D. $+$
9. $\frac{5}{20} \square \frac{3}{10}$
A. $<$ B. $>$ C. $-$ D. $=$
10. $\frac{15}{20} \square \frac{3}{4}$
A. $>$ B. $=$ C. $<$ D. \times

[10 marks]

Structured questions



Use the diagram to answer the following questions.

1. What fraction is shaded green?
2. What fraction is shaded purple?
3. What fraction is not shaded?

[3]

Fill in the following questions using signs ($>$, $<$, $=$).

4. $\frac{12}{20} \square \frac{3}{5}$ 5. $\frac{1}{2} \square \frac{9}{10}$ 6. $\frac{9}{10} \square \frac{37}{100}$ 7. $\frac{35}{50} \square \frac{8}{10}$ [4]

Fill in the missing numbers.

8. $\frac{4}{5} = \frac{\square}{20}$ 9. $\frac{17}{20} = \frac{\square}{100}$ 10. $\frac{3}{10} = \frac{\square}{50}$ [3]

Unit 15

Addition of proper fractions

Objectives

You should be able to:

1. add up to three proper fractions with the same denominator.

Flashback

What fraction of pizza is left on the plate?



a)



b)

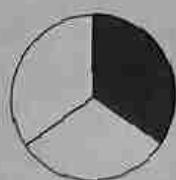


Key words

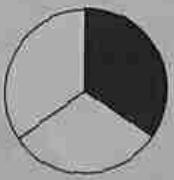
numerator denominator missing fractions

Adding fractions

Example



+



=



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

When adding fractions, you add the numerators. The denominator remains the same.

Practice exercise 1

Add the following fractions. Do not add the denominator.

1. $\frac{1}{2} + \frac{1}{2} = \frac{\square}{\square}$

2. $\frac{1}{3} + \frac{1}{3} = \frac{\square}{\square}$

3. $\frac{1}{4} + \frac{2}{4} = \frac{\square}{\square}$

4. $\frac{1}{5} + \frac{3}{5} = \frac{\square}{\square}$

5. $\frac{1}{6} + \frac{2}{6} = \frac{\square}{\square}$

6. $\frac{1}{7} + \frac{4}{7} = \frac{\square}{\square}$

7. $\frac{1}{8} + \frac{8}{8} = \frac{\square}{\square}$

8. $\frac{1}{9} + \frac{7}{9} = \frac{\square}{\square}$

9. $\frac{2}{8} + \frac{3}{8} = \frac{\square}{\square}$

10. $\frac{3}{6} + \frac{2}{6} = \frac{\square}{\square}$

11. $\frac{4}{7} + \frac{2}{7} = \frac{\square}{\square}$

12. $\frac{2}{4} + \frac{1}{4} = \frac{\square}{\square}$

13. $\frac{5}{10} + \frac{3}{10} = \frac{\square}{\square}$

14. $\frac{4}{10} + \frac{3}{10} = \frac{\square}{\square}$

15. $\frac{4}{10} + \frac{3}{10} = \frac{\square}{\square}$

16. $\frac{6}{10} + \frac{3}{10} = \frac{\square}{\square}$

Practice exercise 2

Add the following fractions. Do not add the denominator.

1. $\frac{4}{10} + \frac{4}{10} = \frac{\square}{\square}$

2. $\frac{14}{20} + \frac{1}{20} = \frac{\square}{\square}$

3. $\frac{8}{10} + \frac{1}{10} = \frac{\square}{\square}$

4. $\frac{15}{20} + \frac{3}{20} = \frac{\square}{\square}$

5. $\frac{3}{10} + \frac{5}{10} = \frac{\square}{\square}$

6. $\frac{3}{10} + \frac{6}{10} = \frac{\square}{\square}$

7. $\frac{13}{20} + \frac{6}{20} = \frac{\square}{\square}$

8. $\frac{6}{20} + \frac{14}{20} = \frac{\square}{\square}$

9. $\frac{5}{50} + \frac{3}{50} = \frac{\square}{\square}$

10. $\frac{35}{100} + \frac{43}{100} = \frac{\square}{\square}$

11. $\frac{25}{50} + \frac{11}{50} = \frac{\square}{\square}$

12. $\frac{65}{100} + \frac{15}{100} = \frac{\square}{\square}$

13. $\frac{7}{10} + \frac{8}{10} = \frac{\square}{\square}$

14. $\frac{7}{20} + \frac{11}{20} = \frac{\square}{\square}$

15. $\frac{18}{50} + \frac{23}{50} = \frac{\square}{\square}$

16. $\frac{72}{100} + \frac{22}{100} = \frac{\square}{\square}$

Practice exercise 3

Add the following fractions. Do not add the denominator.

1. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{\square}{\square}$

2. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{\square}{\square}$

3. $\frac{1}{5} + \frac{2}{5} + \frac{1}{5} = \frac{\square}{\square}$

4. $\frac{2}{9} + \frac{2}{9} + \frac{3}{9} = \frac{\square}{\square}$

5. $\frac{2}{7} + \frac{1}{7} + \frac{1}{7} = \frac{\square}{\square}$

6. $\frac{3}{6} + \frac{1}{6} + \frac{2}{6} = \frac{\square}{\square}$

7. $\frac{3}{8} + \frac{2}{8} + \frac{2}{8} = \frac{\square}{\square}$

8. $\frac{3}{10} + \frac{3}{10} + \frac{3}{10} = \frac{\square}{\square}$

9. $\frac{14}{50} + \frac{25}{50} + \frac{1}{50} = \frac{\square}{\square}$

10. $\frac{5}{20} + \frac{12}{20} + \frac{2}{20} = \frac{\square}{\square}$

11. $\frac{40}{100} + \frac{23}{100} + \frac{18}{100} = \frac{\square}{\square}$

12. $\frac{30}{100} + \frac{40}{100} + \frac{20}{100} = \frac{\square}{\square}$

Addition stories

Example

Luke spends $\frac{1}{4}$ of an hour reading a book and $\frac{2}{4}$ of an hour watching television. How much time did he spend reading and watching television?

Solution

$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$$

He spent $\frac{3}{4}$ of an hour watching television and reading.

Practice exercise 4

Answer the questions that follow.

- Kuda read $\frac{2}{5}$ of a book in a day. He read $\frac{1}{5}$ the next day. How much of the book did he read of the book in the two days?
- Sipho ate $\frac{2}{8}$ of a pizza and Tinashe ate $\frac{3}{8}$ of the same pizza. How much of the pizza did they eat altogether?
- Spewe gave $\frac{3}{10}$ of her tray of cupcakes to Norah and $\frac{5}{10}$ of her tray of cupcakes to Vusa. How much of the tray of cupcakes did he give away?
- A recipe requires $\frac{3}{5}$ of a cup of white sugar and $\frac{1}{5}$ of a cup of brown sugar. How much sugar is needed altogether?
- Tendai sold $\frac{4}{20}$ of a basket of eggs at home. He then sold $\frac{13}{20}$ of that same basket at the bus stop. What fraction of the basket did he sell altogether?

Missing fractions

Example

$$\frac{3}{7} + \square = \frac{6}{7}$$

Solution

$$\frac{3}{7}$$

Practice exercise 5

Copy and complete. Do not add the denominator.

1. $\frac{1}{3} + \square = \frac{2}{3}$

2. $\square + \frac{2}{9} = \frac{5}{9}$

3. $\frac{12}{20} + \square = \frac{15}{20}$

4. $\square + \frac{25}{50} = \frac{32}{50}$

5. $\frac{38}{100} + \square = \frac{72}{100}$

6. $\frac{5}{6} + \square = \frac{6}{6}$

7. $\frac{4}{8} + \square = \frac{6}{8}$

8. $\square + \frac{1}{4} = \frac{4}{4}$

9. $\frac{3}{5} + \square = \frac{4}{5}$

10. $\frac{9}{20} + \square = \frac{19}{20}$

11. $\square + \frac{22}{50} = \frac{34}{50}$

12. $\frac{45}{100} + \square = \frac{85}{100}$

End of unit assessment

Multiple choice

1. $\frac{1}{6} + \frac{4}{6} = \frac{\square}{\square}$

A. $\frac{5}{6}$

B. $\frac{3}{6}$

C. $\frac{6}{6}$

D. $\frac{1}{6}$

2. $\frac{35}{100} + \frac{45}{100} = \frac{\square}{\square}$

A. $\frac{10}{100}$

B. $\frac{65}{100}$

C. $\frac{80}{100}$

D. $\frac{50}{100}$

3. $\frac{\square}{\square} + \frac{4}{13} = \frac{12}{13}$

A. $\frac{9}{13}$

B. $\frac{8}{13}$

C. $\frac{7}{13}$

D. $\frac{6}{13}$

4. $\frac{2}{7} + \frac{\square}{7} = \frac{6}{7}$

A. $\frac{1}{7}$

B. $\frac{6}{7}$

C. $\frac{5}{7}$

D. $\frac{4}{7}$

5. $\frac{3}{20} + \frac{7}{20} = \frac{\square}{\square}$

A. $\frac{10}{20}$

B. $\frac{4}{20}$

C. $\frac{11}{20}$

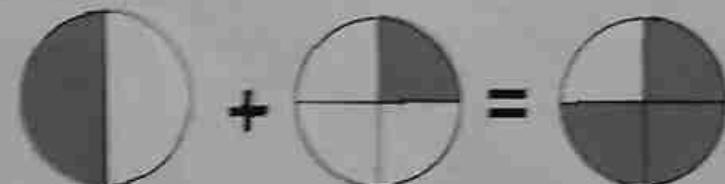
D. $\frac{8}{20}$

6. $\frac{5}{15} + \frac{4}{15} + \frac{9}{15} = \frac{18}{15}$
- A. $\frac{13}{15}$ B. $\frac{12}{15}$ C. $\frac{7}{15}$ D. $\frac{9}{15}$
7. $\frac{23}{100} + \frac{26}{100} + \frac{35}{100} = \frac{84}{100}$
- A. $\frac{54}{100}$ B. $\frac{72}{100}$ C. $\frac{82}{100}$ D. $\frac{49}{100}$
8. Thabo ate $\frac{2}{5}$ of sweets from a packet of sweets in the morning. He ate $\frac{5}{10}$ in the afternoon. What fraction did he eat altogether?
- A. $\frac{5}{10}$ B. $\frac{10}{10}$ C. $\frac{3}{10}$ D. $\frac{7}{10}$
9. Chipo sold $\frac{2}{9}$ of her buckets on Monday. She then sold $\frac{3}{9}$ on Tuesday. What fraction of her buckets did she sell altogether?
- A. $\frac{5}{9}$ B. $\frac{1}{9}$ C. $\frac{8}{9}$ D. $\frac{3}{9}$
10. Kelly spends $\frac{1}{3}$ of his time reading, $\frac{2}{8}$ watching television and $\frac{4}{8}$ cleaning the house on Saturday afternoon. How much time did she spend altogether?
- A. $\frac{3}{8}$ B. $\frac{7}{8}$ C. $\frac{6}{8}$ D. $\frac{5}{8}$ [10 marks]

Structured questions

Copy and complete.

1.



$$\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$$

$$\frac{1}{2} + \frac{1}{2} = 1$$

[1]

2.



$$\frac{3}{6} + \frac{4}{6} = \frac{7}{6}$$

$$\frac{3}{6} + \frac{4}{6} = \frac{7}{6}$$

[1]

3. Tinashe ate $\frac{2}{8}$ pieces of bread and Tendai ate $\frac{3}{8}$ of the same bread. How many did they eat altogether? [1]
4. A recipe required $\frac{2}{9}$ cups of rice, $\frac{3}{9}$ cups of milk and $\frac{1}{9}$ cups of salt. What is the fraction of cups needed altogether? [1]
5. $\frac{1}{6} + \frac{3}{6} = \frac{\square}{\square}$ 6. $\frac{9}{20} + \frac{11}{20} = \frac{\square}{\square}$ 7. $\frac{3}{7} + \frac{2}{7} = \frac{\square}{\square}$ [3]
8. $\frac{12}{20} + \frac{3}{20} = \frac{\square}{\square}$ 9. $\frac{38}{100} + \frac{25}{100} = \frac{\square}{\square}$ 10. $\frac{24}{50} + \frac{13}{50} = \frac{\square}{\square}$ [3]

Unit 16

Subtraction of proper fractions

Objective

You should be able to:

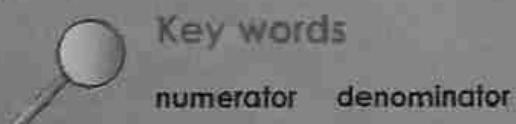
1. subtract proper fractions with the same denominators.

Flashback

Mother ate 1 piece of cake. If the pieces are equal, how many pieces did mother cut the cake into?



Key words



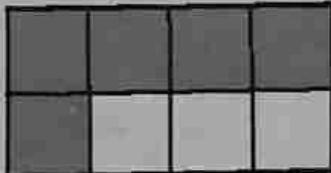
numerator denominator

Subtracting fractions

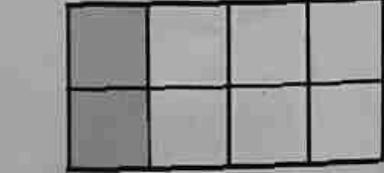
Example



$$\frac{7}{8}$$



$$\frac{5}{8}$$



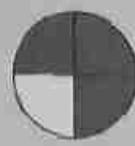
$$\frac{2}{8}$$

When subtracting fractions, you subtract the numerators only. The denominator remains the same.

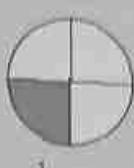
Practice exercise 1

Subtract the following fractions.

1.



$$\frac{3}{4}$$



$$\frac{1}{4}$$

2.

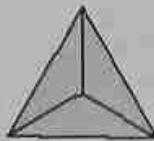


$$\frac{1}{2}$$



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

3.



$$\frac{3}{3}$$

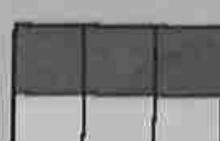


$$\frac{2}{3}$$

4.



$$\frac{5}{6}$$



$$\frac{3}{6}$$

5.



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



$$\frac{3}{5}$$

6.



$$\frac{5}{7}$$

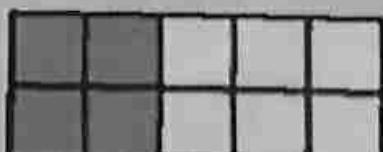


$$\frac{4}{7}$$

7.



$$\frac{7}{10}$$



$$\frac{4}{10}$$

8.



$$\frac{4}{9}$$



$$\frac{2}{9}$$

Practice exercise 2

Subtract the following fractions. Do not subtract the denominator.

1. $\frac{1}{2} - \frac{1}{2} = \frac{\square}{\square}$

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

3. $\frac{2}{2} - \frac{1}{2} = \frac{\square}{\square}$

4. $\frac{5}{6} - \frac{1}{6} = \frac{\square}{\square}$

5. $\frac{4}{8} - \frac{2}{8} = \frac{\square}{\square}$

6. $\frac{3}{3} - \frac{2}{3} = \frac{\square}{\square}$

7. $\frac{3}{4} - \frac{1}{4} = \frac{\square}{\square}$

8. $\frac{7}{10} - \frac{3}{10} = \frac{\square}{\square}$

9. $\frac{4}{5} - \frac{1}{5} = \frac{\square}{\square}$

10. $\frac{6}{7} - \frac{4}{7} = \frac{\square}{\square}$

11. $\frac{4}{7} - \frac{2}{7} = \frac{\square}{\square}$

12. $\frac{2}{4} - \frac{1}{4} = \frac{\square}{\square}$

Practice exercise 3

Subtract the following fractions. Do not subtract the denominator.

1. $\frac{7}{9} - \frac{1}{9} = \frac{\square}{\square}$

2. $\frac{8}{10} - \frac{5}{10} = \frac{\square}{\square}$

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

4. $\frac{9}{10} - \frac{7}{10} = \frac{\square}{\square}$

5. $\frac{17}{20} - \frac{12}{20} = \frac{\square}{\square}$

6. $\frac{18}{20} - \frac{7}{20} = \frac{\square}{\square}$

7. $\frac{38}{50} - \frac{23}{50} = \frac{\square}{\square}$

8. $\frac{18}{20} - \frac{11}{20} = \frac{\square}{\square}$

9. $\frac{73}{100} - \frac{42}{100} = \frac{\square}{\square}$

10. $\frac{36}{50} - \frac{10}{50} = \frac{\square}{\square}$

11. $\frac{94}{100} - \frac{28}{100} = \frac{\square}{\square}$

12. $\frac{75}{100} - \frac{35}{100} = \frac{\square}{\square}$

Practice exercise 4

Subtract the following fractions. Do not subtract the denominator.

1. $\frac{3}{4} - \frac{1}{4} - \frac{1}{4} = \frac{\square}{\square}$

2. $\frac{4}{5} - \frac{2}{5} - \frac{1}{5} = \frac{\square}{\square}$

3. $\frac{6}{7} - \frac{3}{7} - \frac{1}{7} = \frac{\square}{\square}$

4. $\frac{5}{9} - \frac{2}{9} - \frac{1}{9} = \frac{\square}{\square}$

5. $\frac{6}{6} - \frac{2}{6} - \frac{3}{6} = \frac{\square}{\square}$

6. $\frac{7}{10} - \frac{3}{10} - \frac{1}{10} = \frac{\square}{\square}$

7. $\frac{12}{20} - \frac{5}{20} - \frac{3}{20} = \frac{\square}{\square}$

8. $\frac{5}{8} - \frac{1}{8} - \frac{1}{8} = \frac{\square}{\square}$

9. $\frac{17}{20} - \frac{11}{20} - \frac{3}{20} = \frac{\square}{\square}$

10. $\frac{45}{50} - \frac{18}{50} - \frac{3}{50} = \frac{\square}{\square}$

11. $\frac{96}{100} - \frac{44}{100} - \frac{11}{100} = \frac{\square}{\square}$

12. $\frac{56}{100} - \frac{38}{100} - \frac{10}{100} = \frac{\square}{\square}$

Subtraction stories

Example

$\frac{5}{8}$ learners in a class are girls. What fraction of learners in the class are boys?

Solution

$$\frac{8}{8} - \frac{5}{8} = \frac{3}{8}$$

$\frac{3}{8}$ of the learners in a class are boys.

Practice exercise 5

Answer the questions that follow.

- Prisca got $\frac{2}{3}$ of an orange from mother. If she gave $\frac{1}{3}$ to Thando. What fraction of the orange was she left with?
- Mrs Moyo sold off $\frac{7}{9}$ of a cake at the cake sale. What fraction of cake remained behind?
- Lucas spent $\frac{4}{10}$ of an hour swimming, $\frac{3}{10}$ of an hour listening to the radio and the rest of the hour sleeping. What fraction of an hour did he spend sleeping?
- Angela spent $\frac{35}{100}$ of a dollar on a toy and $\frac{45}{100}$ of a dollar on a candy bar. What fraction of a dollar is her change?
- $\frac{13}{20}$ bottles of milk in a crate is fresh. What fraction of milk in a crate has gone bad?

End of topic assessment

Multiple choice

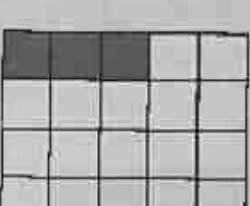
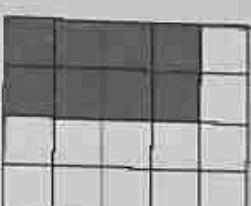
- $\frac{7}{12} - \frac{4}{12} = \frac{\square}{\square}$
A. $\frac{2}{12}$ B. $\frac{10}{12}$ C. $\frac{11}{12}$ D. $\frac{3}{12}$
- $\frac{9}{10} - \frac{7}{10} = \frac{\square}{\square}$
A. $\frac{2}{10}$ B. $\frac{3}{10}$ C. $\frac{4}{10}$ D. $\frac{7}{10}$

3. $\frac{63}{100} - \frac{23}{100} = \frac{\square}{\square}$
- A. $\frac{86}{100}$ B. $\frac{40}{100}$ C. $\frac{23}{100}$ D. $\frac{3}{100}$
4. $\frac{6}{9} - \frac{2}{9} + \frac{1}{9} = \frac{\square}{\square}$
- A. $\frac{1}{9}$ B. $\frac{5}{9}$ C. $\frac{3}{9}$ D. $\frac{4}{9}$
5. $\frac{100}{100} - \frac{50}{100} - \frac{25}{100} = \frac{\square}{\square}$
- A. $\frac{60}{100}$ B. $\frac{50}{100}$ C. $\frac{25}{100}$ D. $\frac{75}{100}$
6. $\frac{5}{9} - \frac{2}{9} - \frac{2}{9} = \frac{\square}{\square}$
- A. $\frac{1}{9}$ B. $\frac{3}{9}$ C. $\frac{4}{9}$ D. $\frac{2}{9}$
7. $\frac{3}{3} - \frac{1}{3} = \frac{\square}{\square}$
- A. $\frac{1}{3}$ B. $\frac{1}{2}$ C. $\frac{1}{4}$ D. $\frac{2}{3}$
8. A farm has $\frac{6}{8}$ goats and the rest were cows. What fraction of animals at the farm are cows?
- A. $\frac{3}{8}$ B. $\frac{2}{8}$ C. $\frac{4}{8}$ D. $\frac{1}{2}$
9. Prince bought $\frac{9}{10}$ chocolates. He gave $\frac{3}{10}$ to Blessing. What fraction of chocolates was he left with?
- A. $\frac{6}{10}$ B. $\frac{3}{10}$ C. $\frac{4}{10}$ D. $\frac{5}{10}$
10. Justin spent $\frac{30}{100}$ of the day sleeping. He spent $\frac{20}{100}$ of the day playing outside and $\frac{25}{100}$ of a day eating. The rest of the day he spent at school. What fraction is spent at school?
- A. $\frac{25}{100}$ B. $\frac{35}{100}$ C. $\frac{45}{100}$ D. $\frac{50}{100}$

Structured questions

Copy and complete

1.



$$\frac{\square}{\square} - \frac{\square}{\square} = \frac{\square}{\square}$$

[1]

Answer all the following.

2. $\frac{12}{20} - \frac{7}{20} = \frac{\square}{\square}$

3. $\frac{47}{50} - \frac{15}{50} = \frac{\square}{\square}$

[2]

4. $\frac{10}{20}$ in a class are wearing jerseys. What fraction is not wearing jerseys in the lowest terms.

[2]

5. A cake has been cut to 5 pieces. If it is shared among 3 people. The first person got $\frac{1}{5}$, then the second person got $\frac{1}{5}$ and the third got $\frac{2}{5}$. What is the fraction of the cake is left over?

[2]

6. $\frac{4}{6} - \frac{1}{6} = \frac{\square}{\square}$

7. $\frac{8}{10} - \frac{3}{10} = \frac{\square}{\square}$

8. $\frac{35}{50} - \frac{12}{50} = \frac{\square}{\square}$

[3]

Unit 17

Multiplication of proper fractions

Objectives

You should be able to:

1. multiply proper fractions
2. calculate fractions of numbers and measures within the range (with denominators from 2 to 10 and 100).

Flashback

Multiplication is repeated addition. Hence $\frac{1}{2} + \frac{1}{2} = 2 \times \frac{1}{2}$
 $= \frac{2}{2} = 1$



Key words

calculator proper fraction

Multiply by whole numbers

Example

$$\begin{aligned} 1. \quad \frac{1}{3} \times 6 &= \frac{1}{3} \times \frac{6}{1} \\ &= \frac{6}{3} \\ &= 2 \end{aligned}$$

$$\begin{aligned} 2. \quad \frac{1}{3} \times 10 &= \frac{1}{3} \times \frac{10}{1} \\ &= \frac{10}{3} \end{aligned}$$

Practice exercise 1

Do the following:

- | | | | |
|---------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| 1. $\frac{1}{2} \times 2 = \square$ | 2. $\frac{1}{2} \times 5 = \square$ | 3. $\frac{1}{4} \times 8 = \square$ | 4. $\frac{1}{4} \times 10 = \square$ |
| 5. $\frac{3}{4} \times 100 = \square$ | 6. $\frac{4}{5} \times 10 = \square$ | 7. $\frac{7}{8} \times 10 = \square$ | 8. $\frac{4}{6} \times 4 = \square$ |

9. $\frac{2}{3} \times 9 = \square$ 10. $\frac{1}{6} \times 9 = \square$ 11. $\frac{2}{8} \times 6 = \square$ 12. $\frac{3}{5} \times 20 = \square$
 13. $\frac{3}{10} \times 3 = \square$ 14. $\frac{4}{6} \times 4 = \square$ 15. $\frac{2}{8} \times 3 = \square$ 16. $\frac{2}{4} \times 20 = \square$

Measures

Example

What is $\frac{1}{2}$ of 8 metres?

$$\begin{aligned}\frac{1}{2} \text{ of } 8\text{m} &= \frac{1}{2} \times 8 \\ &= \frac{1}{2} \times \frac{8}{1} \\ &= \frac{8}{2} \\ &= 4 \text{ m}\end{aligned}$$

Practice exercise 2

Do the following:

1. $\frac{1}{4}$ of 12m = \square 2. $\frac{1}{2}$ of 20 kg = \square 3. $\frac{2}{8}$ of \$64 = \square 4. $\frac{1}{6}$ of 42 km = \square
 5. $\frac{1}{10}$ of 50l = \square 6. $\frac{3}{5}$ of \$100 = \square 7. $\frac{3}{4}$ of 750kg = \square 8. $\frac{3}{8}$ of 40m = \square
 9. $\frac{4}{10}$ of \$500 = \square 10. $\frac{1}{8}$ of 720 cm = \square 11. $\frac{3}{7}$ of 210m = \square 12. $\frac{3}{5}$ of 75kg = \square
 13. $\frac{2}{3}$ of 240l = \square 14. $\frac{3}{10}$ of \$850 = \square 15. $\frac{6}{8}$ of 480g = \square 16. $\frac{8}{2}$ of 45m = \square

Practice exercise 3

Do the following:

1. $\frac{1}{2}$ of 30 = \square 2. $\frac{1}{4}$ of 100 = \square 3. $\frac{2}{5}$ of 90 = \square 4. $\frac{7}{8}$ of 720 = \square

5. $\frac{6}{10}$ of 80 = 6. $\frac{1}{5}$ of \$350 = 7. $\frac{5}{9}$ of 450m = 8. $\frac{7}{8}$ of 560 l =
9. $\frac{4}{6}$ of 360km = 10. $\frac{3}{4}$ of 480 cm = 11. $\frac{1}{4}$ of 800 kg = 12. $\frac{1}{2}$ of \$900 =
13. $\frac{3}{6}$ of \$600 = 14. $\frac{5}{8}$ of 400 m = 15. $\frac{1}{5}$ of 750 ml =

Number stories

Example

A man has $\frac{3}{4}$ of \$400. How much does he have?

Solution:

$$\begin{aligned}\frac{3}{4} \times 400 &= \frac{3}{4} \times \frac{400}{1} \\ &= \frac{1200}{4} \\ &= \$300\end{aligned}$$

Practice exercise 4

Do the following:

- Mrs Ngwenya had \$100.00. She used $\frac{1}{4}$ of her money. How much had she left?
- A 100 m rope has $\frac{2}{5}$ of it cut off. How long is the piece left?
- Kundai had 45 sweets and gave her sister Kudzai $\frac{3}{9}$ of the sweets. How many sweets had she left?
- A farmer had 10 rolls of barbed wire. She used $\frac{1}{2}$ of it. How many rolls are left?
- What is $\frac{3}{4}$ of 800m?
- $\frac{4}{7}$ of 49 learners are boys. How many girls are in this class?
- A bottle of cooking oil holds 750ml. The bottle is $\frac{3}{4}$ full. How many ml of oil is in the bottle?
- Father shared two packets of sweets among his four children. What fraction of a packet did each child get?

Multiplication of a proper fraction by another proper fraction

Example:

1. $\frac{1}{2} \times \frac{2}{5} = \frac{2}{10}$ you multiply numerators on their own denominators on their own then
 $= \frac{1}{5}$ reduce the final answer to its lowest term.

2. $\frac{1}{5} \times \frac{1}{4} = \frac{1}{20}$

3. $\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$

Practice exercise 5

Do these:

1. $\frac{1}{2} \times \frac{1}{2} = \square$ 2. $\frac{1}{2} \times \frac{1}{3} = \square$ 3. $\frac{1}{2} \times \frac{1}{5} = \square$ 4. $\frac{2}{3} \times \frac{1}{4} = \square$

5. $\frac{3}{10} \times \frac{2}{3} = \square$ 6. $\frac{1}{4} \times \frac{1}{5} = \square$ 7. $\frac{3}{10} \times \frac{5}{6} = \square$ 8. $\frac{1}{6} \times \frac{2}{10} = \square$

9. $\frac{3}{4} \times \frac{2}{3} = \square$ 10. $\frac{3}{8} \times \frac{1}{4} = \square$ 11. $\frac{5}{8} \times \frac{4}{10} = \square$ 12. $\frac{9}{10} \times \frac{1}{3} = \square$

13. $\frac{6}{8} \times \frac{6}{10} = \square$ 14. $\frac{4}{5} \times \frac{1}{2} = \square$ 15. $\frac{7}{8} \times \frac{3}{4} = \square$

End of unit assessment

Multiple choice

1. $\frac{1}{2} \times 4 = \square$
A. 8 B. 2 C. 4 D. 6

2. $\frac{1}{2} \times 7 = \square$
A. $\frac{3}{8}$ B. $\frac{7}{2}$ C. $\frac{3}{4}$ D. $\frac{4}{6}$

3. $\frac{1}{6} \times \frac{1}{2} = \square$
- A. $\frac{1}{6}$ B. $\frac{1}{2}$ C. $\frac{2}{8}$ D. $\frac{1}{12}$
4. $\frac{1}{4} \times \frac{1}{4} = \square$
- A. $\frac{2}{8}$ B. $\frac{2}{4}$ C. $\frac{1}{4}$ D. $\frac{1}{16}$
5. $\frac{2}{3} \times \frac{3}{4} = \square$
- A. $\frac{5}{7}$ B. $\frac{6}{12}$ C. $\frac{1}{2}$ D. $\frac{2}{4}$
6. $\frac{1}{4} \times 16 = \square$
- A. 4 B. 8 C. $\frac{16}{4}$ D. $\frac{4}{16}$
7. $\frac{2}{3}$ of \$30 = \square
- A. \$20 B. \$30 C. \$15 D. \$60
8. $\frac{3}{10}$ of 100g = \square
- A. 30g B. 20g C. 10g D. 3g
9. Which of these is the biggest?
- A. $\frac{1}{5}$ of a \$1 B. $\frac{1}{10}$ of \$1 C. $\frac{1}{4}$ of \$1 D. $\frac{1}{2}$ of a \$1
10. $\frac{3}{4}$ of 20 = \square
- A. \$12 B. \$15 C. \$20 D. \$60
- [10 marks]

Structured questions

1. $\frac{1}{2}$ kg = \square g
2. Monica received $\frac{1}{4}$ and Pauline received $\frac{2}{3}$ of a packet of 12 sweets. How many sweets did each get?
- [1]

3. $\frac{1}{2}$ of 40m = [1]
4. $\frac{1}{5} \times 15 = \square$ [1]
5. $\frac{3}{10} \times 5 = \square$ [1]
6. A bus has seats for 70 people. $\frac{3}{5}$ of them had passengers. How many were empty? [1]
7. $4 \times \frac{4}{6} = \square$ [1]
8. Find $\frac{2}{3}$ of \$10.20. [1]
9. Richard lives 750m from the clinic. Denis lives $\frac{2}{5}$ of this distance from the clinic.
How far does Denis live from the clinic? [1]
10. Paidamoyo takes 60 ARV tablets every month. This month she is given only $\frac{3}{4}$ because
there is a shortage of these tablets. How many ARV tablets was she given? [1]

Unit 18

Improper fractions and mixed numbers

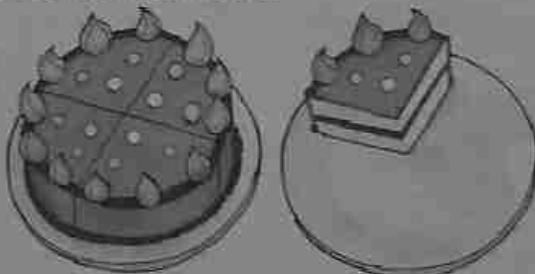
Objectives

You should be able to:

1. identify parts of a mixed number
2. write mixed numbers from diagrams
3. compare mixed numbers
4. arrange mixed numbers in ascending and descending order.

Flashback

Say how much cake is left out, tell your friend.



Key words

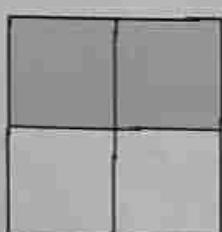
improper fraction

mixed number

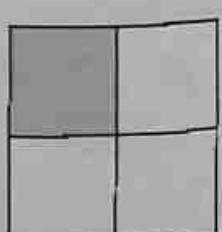
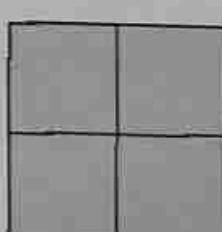
Improper fractions



+



=



The diagrams show $\frac{3}{4} + \frac{2}{4} = \frac{5}{4}$
 $\frac{5}{4}$ is more than 1. It is called an improper fraction.

Fact file

$\frac{7}{3}$ is an improper fraction.

In an improper fraction is where the numerator is bigger than the denominator.

Practice exercise 1

Mental work: Underline the improper fraction.

1. $\frac{1}{4} \quad \frac{3}{2} \quad \frac{4}{7} \quad \frac{9}{10}$

2. $\frac{3}{5} \quad \frac{12}{20} \quad \frac{12}{10} \quad \frac{17}{20}$

3. $\frac{3}{4} \quad \frac{3}{8} \quad \frac{4}{5} \quad \frac{9}{8}$

4. $\frac{3}{7} \quad \frac{7}{3} \quad \frac{2}{5} \quad \frac{8}{9}$

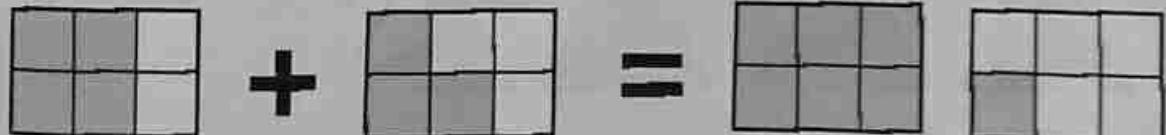
5. $\frac{1}{6} \quad \frac{6}{7} \quad \frac{5}{8} \quad \frac{8}{3}$

6. $\frac{5}{6} \quad \frac{7}{8} \quad \frac{9}{5} \quad \frac{8}{9}$

7. $\frac{15}{20} \quad \frac{38}{50} \quad \frac{24}{20} \quad \frac{17}{50}$

8. $\frac{74}{100} \quad \frac{18}{20} \quad \frac{56}{50} \quad \frac{35}{50}$

Improper fractions and Mixed numbers



We can write $\frac{7}{6} = 1\frac{1}{6}$. We say one and one sixth.

$1\frac{1}{6}$ is a mixed number.

Fact file

$2\frac{1}{3}$ is a mixed number.

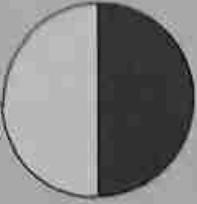
A mixed number has a whole number and a proper fraction.

An improper fraction can be expressed as a mixed number.

Practice exercise 2

Write mixed numbers from the following pictures.

1.



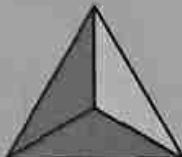
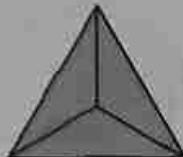
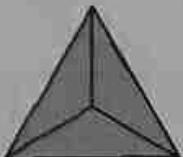
2.



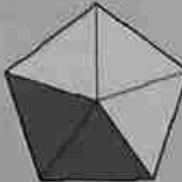
3.



4.



5.



6.



Comparing mixed number

Example

Compare the following using signs $>$, $=$ and $<$.

1. $1\frac{7}{10}$ $1\frac{3}{10}$

2. $1\frac{18}{20}$ $2\frac{11}{20}$

Solution

1. $1\frac{7}{10} > 1\frac{3}{10}$

2. $1\frac{18}{20} < 2\frac{11}{20}$

Practice exercise 3

Fill in using signs $>$, $=$ and $<$.

1. $4\frac{1}{6}$ $4\frac{1}{6}$

2. $1\frac{2}{6}$ $4\frac{1}{6}$

3. $1\frac{2}{3}$ $1\frac{5}{6}$

4. $3\frac{2}{5}$ $3\frac{4}{10}$

5. $1\frac{1}{7}$ $1\frac{3}{7}$

6. $4\frac{3}{4}$ $4\frac{7}{8}$

7. $1\frac{8}{10}$ $1\frac{3}{10}$

8. $1\frac{2}{6}$ $3\frac{2}{6}$

9. $2\frac{4}{7}$ $1\frac{6}{7}$

10. $5\frac{25}{50}$ $4\frac{40}{50}$

11. $2\frac{10}{20}$ $2\frac{30}{50}$

12. $1\frac{90}{100}$ $4\frac{75}{100}$

Number order

Example

Arrange the following mixed number in:

- a) ascending order
- b) descending order.

$1\frac{1}{3}$ $1\frac{1}{8}$ $1\frac{1}{7}$ $1\frac{1}{6}$

Solution

a) $1\frac{1}{8}$ $1\frac{1}{7}$ $1\frac{1}{6}$ $1\frac{1}{3}$

b) $1\frac{1}{3}$ $1\frac{1}{6}$ $1\frac{1}{7}$ $1\frac{1}{8}$

Practice exercise 4

Arrange the following mixed number in:

- a) ascending order
- b) descending order.

1. $\frac{1}{5}, \frac{2}{5}, \frac{1}{10}, \frac{8}{10}$

2. $\frac{7}{10}, \frac{4}{10}, \frac{3}{10}, \frac{3}{10}$

3. $4\frac{1}{2}, \frac{78}{100}, 2\frac{7}{9}, 3\frac{1}{5}$

4. $4\frac{1}{20}, \frac{1}{100}, 1\frac{1}{10}, 1\frac{1}{50}$

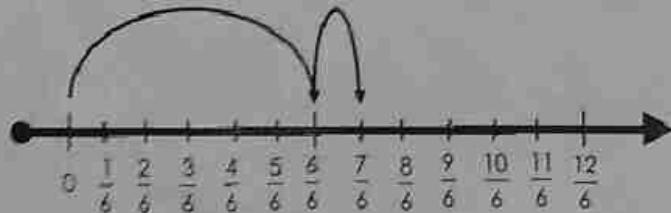
5. $8\frac{7}{10}, 4\frac{4}{10}, 7\frac{3}{10}, 3\frac{3}{10}$

Express improper fraction as mixed number

Example

$$\frac{13}{10} = 1\frac{3}{10}$$

Practice exercise 5



Write these improper fractions as mixed numbers.

1. $\frac{8}{6} = 1\frac{\square}{\square}$

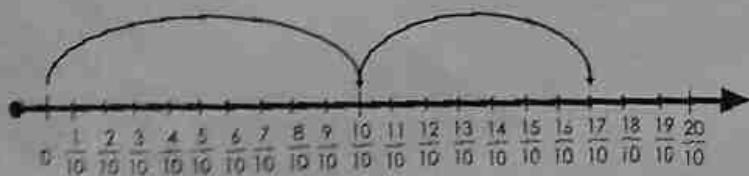
2. $\frac{11}{6}$

3. $\frac{9}{6}$

4. $\frac{10}{6}$

5. $\frac{7}{6}$

6. $\frac{13}{6}$



Use the number line. Write these improper fractions as mixed numbers.

7. $\frac{11}{10}$

8. $\frac{17}{10}$

9. $\frac{6}{5}$

10. $\frac{7}{5}$

11. $\frac{3}{2}$

12. $\frac{13}{10}$

End of unit assessment

Multiple choice

Which number is an improper fraction?

1. A. $\frac{3}{5}$ B. $\frac{3}{4}$ C. $\frac{3}{7}$ D. $\frac{3}{2}$
2. A. $\frac{1}{6}$ B. $\frac{5}{6}$ C. $\frac{3}{7}$ D. $\frac{7}{3}$
3. A. $\frac{11}{6}$ B. $\frac{6}{11}$ C. $\frac{12}{12}$ D. 1

Fill in the gaps using signs ($<$, $>$ and $=$).

4. $6\frac{2}{5}$ $6\frac{3}{5}$
A. = B. < C. > D. +
5. $2\frac{14}{20}$ $2\frac{35}{50}$
A. - B. > C. < D. =
6. Arrange in ascending order (start with the smallest) these numbers: $1\frac{1}{5}$, $1\frac{2}{5}$, $1\frac{1}{3}$, $1\frac{1}{4}$.
A. $1\frac{2}{5}$, $1\frac{1}{4}$, $1\frac{1}{3}$, $1\frac{1}{5}$ B. $1\frac{1}{5}$, $1\frac{1}{4}$, $1\frac{1}{3}$, $1\frac{2}{5}$
C. $1\frac{1}{3}$, $1\frac{2}{5}$, $1\frac{1}{5}$, $1\frac{1}{4}$ D. $1\frac{1}{4}$, $1\frac{1}{5}$, $1\frac{2}{5}$, $1\frac{1}{3}$
7. Arrange in descending order (start with the biggest) these numbers: $9\frac{2}{10}$, $7\frac{3}{4}$, $9\frac{3}{5}$, $7\frac{2}{3}$.
A. $9\frac{3}{5}$, $7\frac{3}{4}$, $9\frac{2}{10}$, $7\frac{2}{3}$ B. $9\frac{3}{5}$, $7\frac{2}{3}$, $9\frac{2}{10}$, $7\frac{3}{4}$
C. $9\frac{2}{10}$, $9\frac{3}{5}$, $7\frac{3}{4}$, $7\frac{2}{3}$ D. $9\frac{3}{5}$, $9\frac{2}{10}$, $7\frac{3}{4}$, $7\frac{2}{3}$
8. $\frac{13}{6}$ as a mixed number.
A. $2\frac{1}{3}$ B. $2\frac{1}{6}$ C. $2\frac{3}{6}$ D. $1\frac{3}{6}$

9. $\frac{17}{7}$ is a mixed number.

A. $2\frac{3}{7}$

B. $1\frac{1}{7}$

C. $2\frac{1}{7}$

D. $\frac{7}{7}$

10. Fill in the missing sign: $2\frac{8}{10} \square 2\frac{25}{100}$

A. <

B. >

C. +

D. -

[10 marks]

Structured questions

Fill in the missing number giving your answer as an improper fraction.

1. $\frac{2}{5} + \frac{4}{5} = \frac{\square}{5}$

2. $\frac{3}{6} + \frac{7}{6} = \frac{\square}{6}$

[2]

Answer with True or False.

3. $\frac{19}{8} > 2\frac{3}{8}$

4. $\frac{11}{6} = 2$

5. $\frac{11}{22} = \frac{1}{2}$

[3]

Show the following as a mixed number.

6. $\frac{14}{5}$

7. $\frac{23}{10}$

8. $\frac{15}{7}$

[3]

9. $\frac{12}{5}$

10. $\frac{3}{2}$

[2]

Unit 19

Solid shapes

Objectives

You should be able to:

1. identify different solid and plane shapes
2. identify various shapes in patterns
3. state the properties of plane and solid shapes
4. draw and construct a cube, rectangular prism and frames (triangular and rectangular).

Flashback

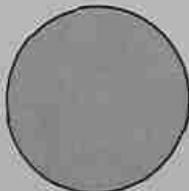
Bring objects like balls and boxes. Say to your friend what shape is it.

Key words



opposite net solids sphere surface

Plane shapes



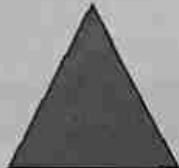
circle



rectangle



square



triangle

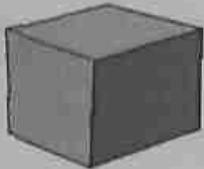
Practice exercise 1

1. Draw and name the shapes above.
2. A square has
a) _____ sides b) _____ corners
3. A rectangle has
a) _____ sides b) _____ corners
4. A circle has
a) _____ sides b) _____ corners
5. A triangle has
a) _____ sides b) _____ corners

Solid shapes

Objects that occupy space are called solid shapes. Their surfaces are called faces. Faces meet at edges and edges meet at corners.

Example of solid shapes include:



cube



rectangular prism



cylinder



sphere

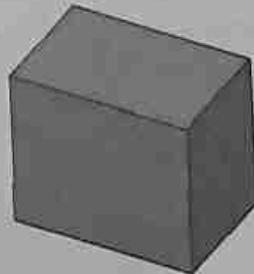
Activity 1

In your exercise books draw the 4 solid shapes above.

Rectangular prism

These shapes are called rectangular prisms. They take up space. On a rectangular prism you can make three measurements: a) length, b) width, c) height, thickness or depth.

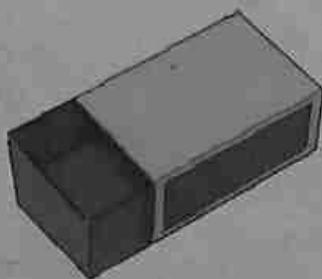
A rectangular prism has 6 faces where opposite faces are equal. It has 12 edges and 8 corners.



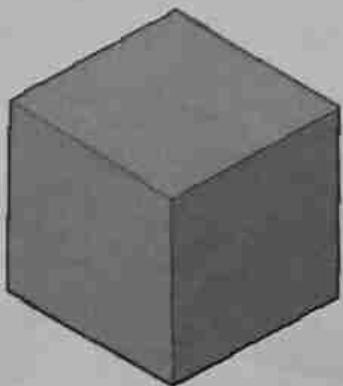
Practice exercise 2

Answer the following.

1. Draw the rectangular prism above and label the following:
a) length b) width c) height
2. How many edges are on a rectangular prism?
3. Name any 3 objects which are rectangular in shape.
4. How many pairs of similar faces are on the match box below?



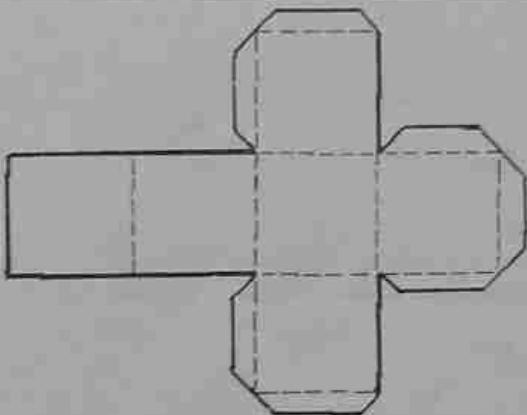
Cube



Look at this picture of a cube. Draw a cube in your book.

The cube has 6 faces which are equal squares, 12 equal edges and 8 corners.

Activity 2



Look at this shape.

- Measure it carefully.
- Copy it on to thin cardboard.
- Cut it out and fold along the dotted lines.
- Glue the flaps and stick together.

Practice exercise 3

You have made a cube.

- What is its
a) length b) width c) height, thickness or depth.
- How many of these has it got?
a) faces b) edges c) corners
- What is the difference between a cube and a rectangular prism?
- Make a list of all the objects you know that are cubes.

Cylinder

The cylinder has 3 faces. 2 flat faces and 1 curved. It has 2 circular edges.



Practice exercise 4

Answer the following.

1. How many flat surfaces has a cylinder?
2. How many curved surfaces?
3. Write this sentence and fill in the missing words: a cylinder takes up _____ and is a _____ shape.
4. Draw pictures of two cylinders.
5. Make a list of all objects you know which are cylinders.

Sphere

Has only one curved surface.



Football



Earth



Orange

Practice exercise 5

Answer the following.

- Which is the biggest sphere of the three?
- How many flat surfaces has a sphere?
- How many curved surfaces?
- Draw pictures of two spheres.
- Make a sphere from a lump of clay?
- Why is a football a sphere?
- Make a list of all the spheres you can think of.

End of unit assessment

Multiple choice

- How many faces has a brick?
A. 4 B. 3 C. 6 D. 5
- A brick has _____ edges.
A. 6 B. 8 C. 10 D. 12
- How many corners has a brick?
A. 4 B. 6 C. 8 D. 12
- One face of a cube is a _____.
A. triangle B. square C. rectangle D. circle
- One face of a rectangular prism is a _____.
A. circle B. triangle C. rectangle D. square
- How many curved surfaces has an orange?
A. 1 B. 2 C. 3 D. 4
- What shape is a ball?
A. circle B. sphere C. square D. rectangle.
- The earth has _____ curved surface.
A. 1 B. 2 C. 3 D. 4
- A box of matches is a _____.
A. square B. cube C. rectangle D. rectangular prism
- The roof of a hut is a _____.
A. sphere B. square C. circle D. cone

[10 marks]

Structured questions

- Draw a rectangular prism and show the following; corner, face, edge, length and width.
[5]
- Draw a cube and label the following; corner, edge and face.
[3]
- Draw a ball and name its shape.
[2]

Unit 20

Direction, angles and lines

Objectives

You should be able to:

1. indicate North (N), South (S), East (E) and West (W)
2. identify horizontal and vertical lines
3. recognise 1, 2, 3 and 4 right angles.

Flashback

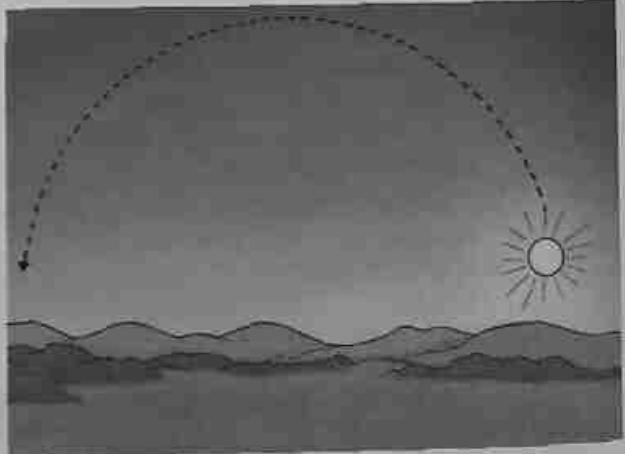
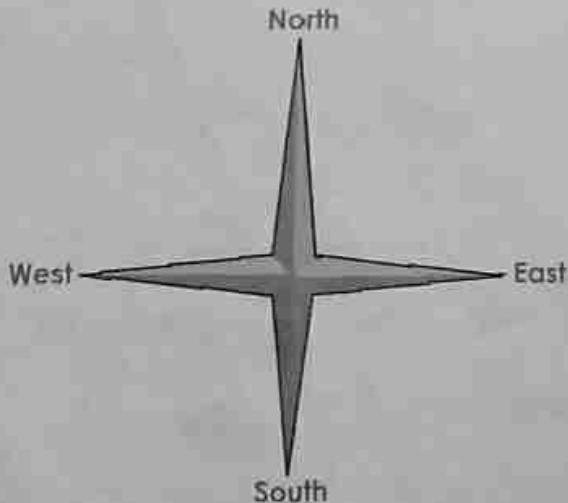
Learners are expected to interpret a compass and describe various angles.

Key words



right angle compass diagonal circumference diameter radius cardinal

Direction



Read the points of the compass to your friend; North, South, East and West. We tell direction using these cardinal points. The sun always rises in the east and sets in the west. This helps us to find where our cardinal north is located.

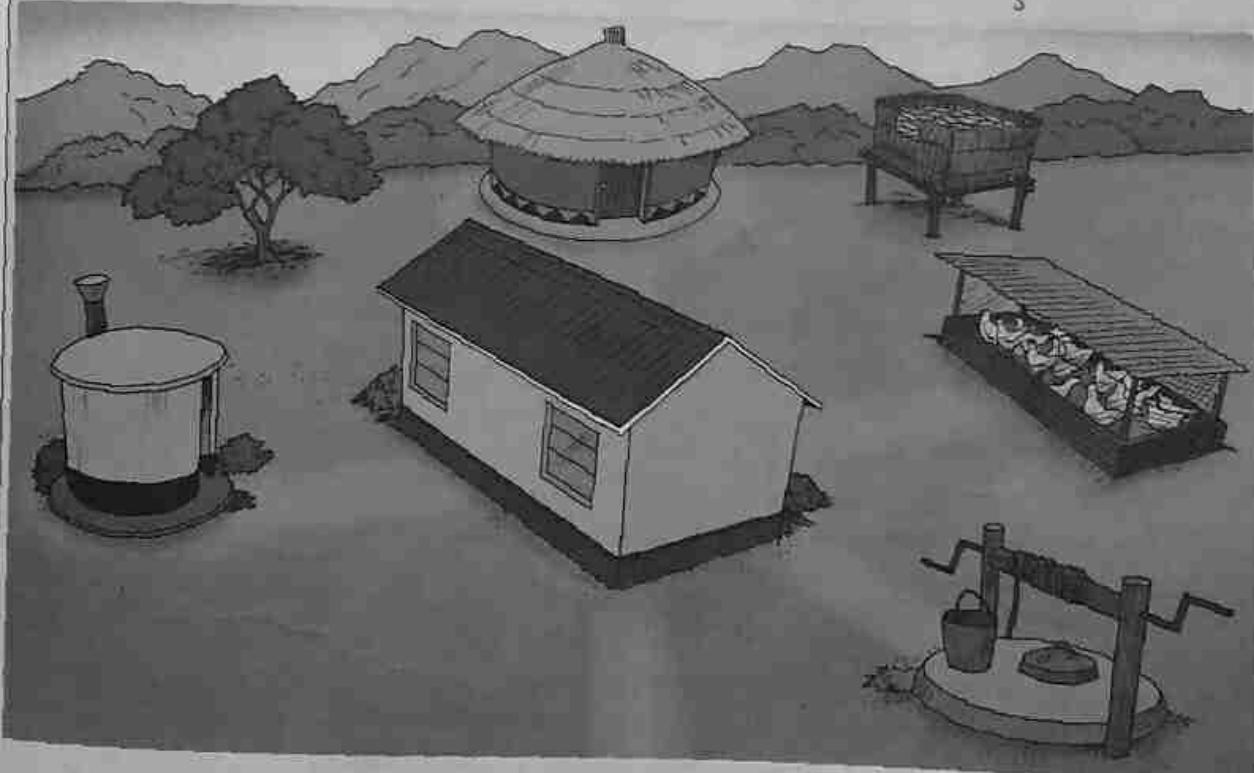
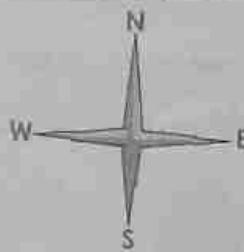
Activity 1

The position of the sun can help us to tell direction,
Go outside.

Point where the sun rose from *this morning*. That is east.
Now the teacher will help you to find north.

Practice exercise 1

Look at the picture. Answer the questions that follow.



1. Tapiwa is moving from the house to the toilet. What direction is the toilet from the house?
2. He goes and washes his hands by the well. What direction is the well from the toilet?
3. He decides to place water for the boilers in the fowl run from the well. What direction is the fowl run from the well?
4. Mother is calling Tapiwa to come and eat his breakfast in the kitchen. What direction is the kitchen from the fowl run?

Activity 2

Move around your school.

Note buildings and landforms in your area near your school.

Tell the direction of certain landforms and buildings from your school.

Now the teacher will help you to find north.

Lines

Lines are used in drawing and measuring. They are two types of lines that are very common.

a) horizontal line _____

b) vertical line |

Activity 3

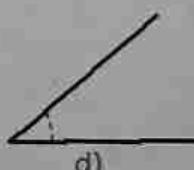
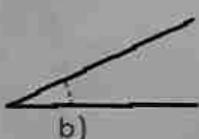
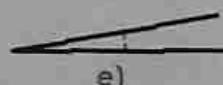
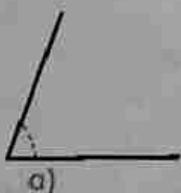
Draw a horizontal line and a vertical line.

Right angles

When one straight line meets another straight line an ANGLE is formed.

In these pictures five angles have been formed a, b, c, d, e.

Write them in order of size. Start with the smallest.



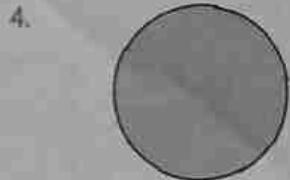
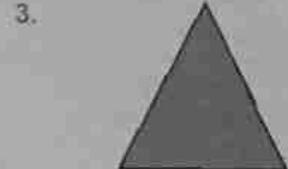
When a horizontal line and a vertical line meet we have a right angle.

- c) Is a RIGHT ANGEL. Look at the edges of this book.
They form right angles at the corners.



Practice exercise 2

Draw the shapes below and mark right angles.



Turning



(a)



(b)



(c)



(d)



(e)

Chipo is looking away from us. Each time she turns to the left she turns through one right angle.

Practice exercise 3

How many right angles does Chipo turn through when she turns from:

- | | | | | |
|------------|------------|------------|------------|-------------|
| 1. a to b. | 2. b to c. | 3. c to d. | 4. d to e | 5. a to c. |
| 6. b to d. | 7. c to e. | 8. a to d. | 9. b to e. | 10. a to e. |

Copy this sentence and fill in the missing number.

11. To turn completely round, Chipo turned _____ right angles.

Activity 4

Follow the instructions on the table and complete it.

1 face	1 turn	1 now face	
NORTH	1 right angle 1 right angle 2 right angles	right left right	East
SOUTH	1 right angle 3 right angles 1 right angle	right right left
EAST	2 right angles 1 right angle 4 right angles	right left right
WEST	1 right angle 2 right angles 4 right angles	right left left

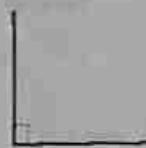
End of topic assessment test

Multiple choice

1.



(a)



(b)



(c)



(d)



(e)

Angle _____ is the largest.

- A. a B. b C. c D. d

2. You are facing north turn 1 right to the right, you are now facing _____.
A. west B. south C. east D. north

3. Sipho is facing east and turns 2 right angles to the left she is facing _____.
A. north B. south C. west D. east

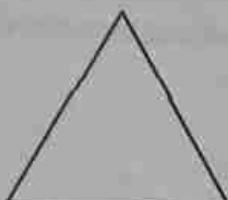
4. Richard is facing south and turns 2 right angles to the left, he is now facing _____.
A. north B. south C. west D. east

5. Makawana is facing west and turns 4 right angles to the right she is now facing _____.
A. east B. north C. south D. west

6.



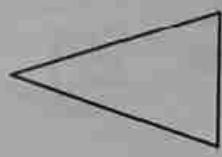
(a)



(b)



(c)



(d)

Triangle _____ has a right angle.

- A. a B. b C. c D. d

7.

The line is called _____.

- A. vertical B. right angle C. horizontal D. triangle

8. When two straight lines meet they form an _____.

- A. line B. shape C. line D. angle

9. The sun sets in the _____.

- A. north B. east C. south D. west

10. There are _____ cardinal points.

- A. 4 B. 3 C. 5 D. 2

Structured questions

1. John walked 50m North. He turned one right angle to the left. He walked another 50m and turned one right angle to the left again. What direction is he facing now? [1]
2. A snail walks 10m to the north and turns 2 right angles to the left. It is now facing _____. [1]
3. The sun rises in the _____. [1]
4. The sun sets in the _____. [1]
5. Which direction is missing? North, East, South and _____. [1]
6. What direction is opposite to South? [1]
7. What direction is opposite to West? [1]
8. How many right angles are from South to North? [1]

Unit 21

Mass

Objectives

You should be able to:

1. find the mass of different objects by weighing
2. convert kilogrammes to grammes and vice versa.

Flashback

In our everyday life we need to know mass of different objects so in this unit you are going to learn more about mass.

Key words



dials mass heavy light scale

Heavy and light

Look at the pictures.

The feather is light.

The rock is heavy.



Practice exercise 1

Which of the two is

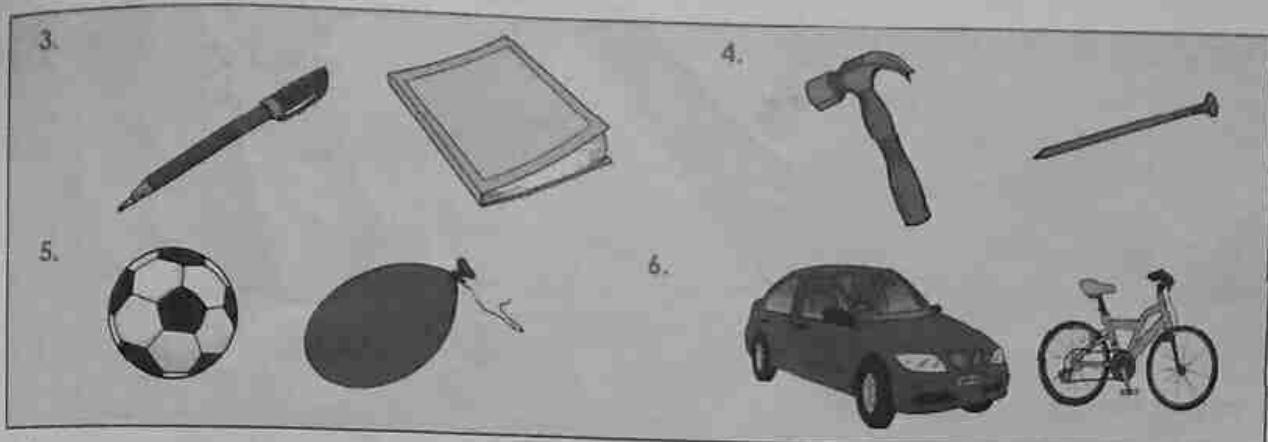
- a) light b) heavy?

1.



2.





Mass

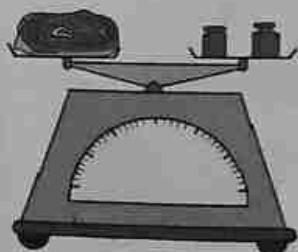
Mass is the amount of matter in something.



Which of the three bags is the heaviest?
Can you tell by just looking?
We need a scale to find out.

To measure mass accurately we need a scale.
They are different kinds of scales.

- a) balance scale
- b) hanging spring scale
- c) digital scale



(a)



(b)



(c)

Activity 1

Bring in different scales.
Check the least weight that can be measured on it.
Check the greatest weight that can be measured on it.
Where is this type of scale often used?

Weighing objects

Mass is measured in grams and kilograms.

1 000 grams = 1 kilograms

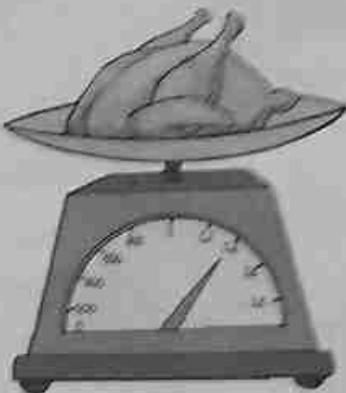
1 000g = 1kg

Example

What is the mass of the chicken?

Solution

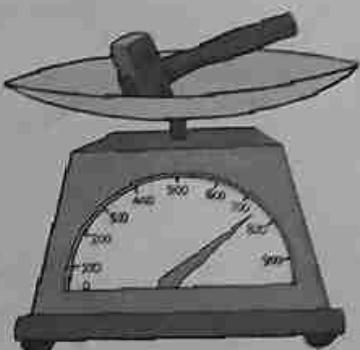
The mass of the chicken is 1.4kg.



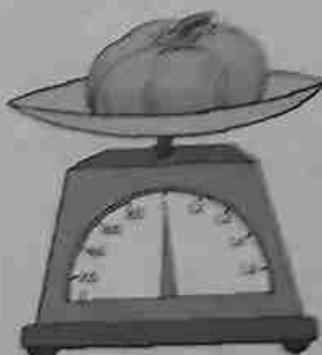
Practice exercise 2

Measure the unit mass of each object.

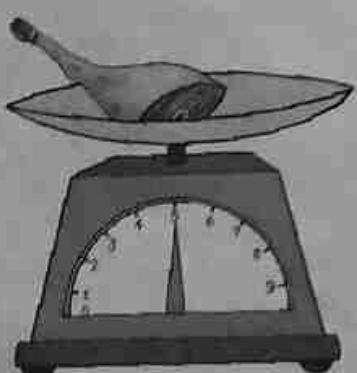
1.



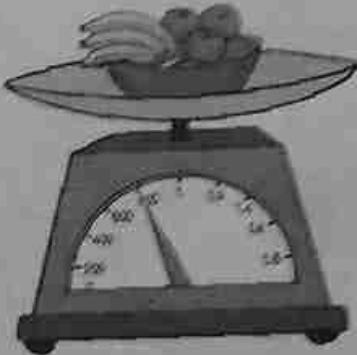
2.



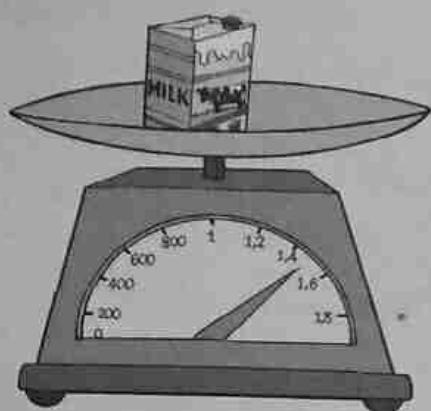
3.



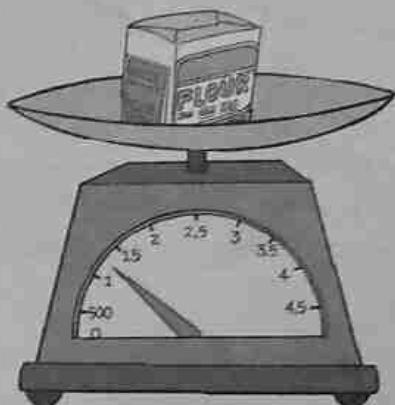
4.



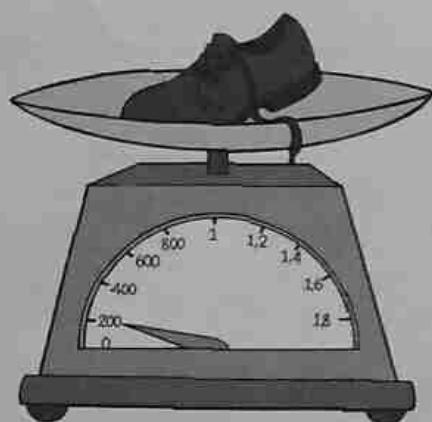
5.



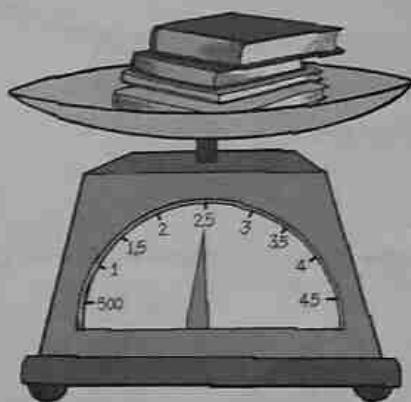
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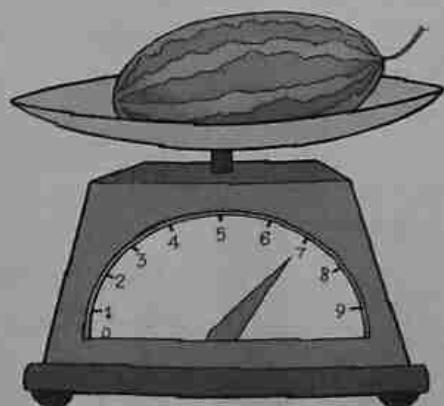
7.



8.



9.



10.



Convert grams to kilograms

Remember: 1 000 grams = 1 kilograms
1 000g = 1kg

Example

1. What is 3 750g in kilograms?
2. How many grams are in 5,250kg?

Solution

1. $3\ 750\text{ g} = 3\ \text{kg}\ 750\text{ g}$
2. $5,250\text{kg} = 5,250 \times 1\ 000 = 5\ 250\text{g}$

Practice exercise 3

C. Write grams in kilograms.

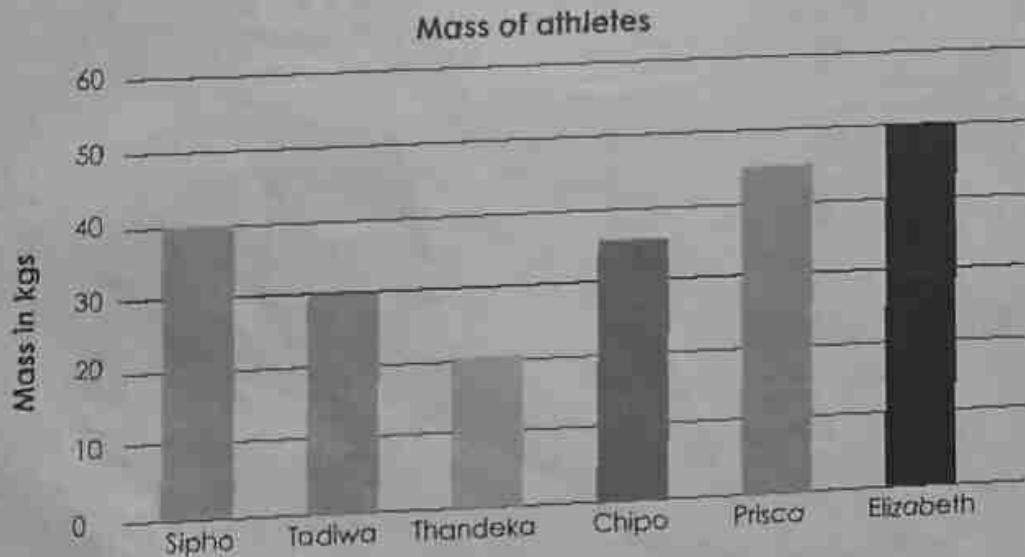
- | | | | | |
|------------|-----------|-----------|-----------|------------|
| 1. 3 450g | 2. 6 250g | 3. 7 650g | 4. 8 500g | 5. 9 750g |
| 6. 2 150 g | 7. 4 620g | 8. 4 200g | 9. 1 850g | 10. 5 650g |

B. Write these kilograms in grams.

- | | | | | |
|-----------|------------|-------------|------------|------------|
| 11. 1,5kg | 12. 3,25kg | 13. 2,75 kg | 14. 6,1 kg | 15. 5,3kg |
| 16. 4,7kg | 17. 9,9 kg | 18. 8,2 kg | 19. 7,4 kg | 20. 7,6 kg |

Comparing mass

There are six girls in the Grade 4 Tennis team. Their mass was recorded in the graph below.



Practice exercise 4

Answer the following questions.

1. Write the names of the athletes in order of their masses. Put the heaviest first.
2. Who is the heaviest girl? What is her mass?
3. Who is the lightest girl? What is her mass?
4. What is the difference between Chipo's and Thandeka's mass?
5. Who are the heavier Prisca and Elizabeth or Sipho and Tadiwa?
6. Elizabeth was ill and lost 5kg. What is her mass now?
7. What is the mass of all the girls together?

Activity 2

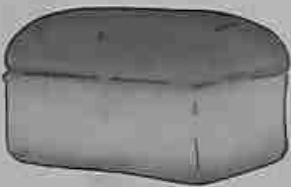
Find the mass of any five mammals.

Draw a graph and write questions.

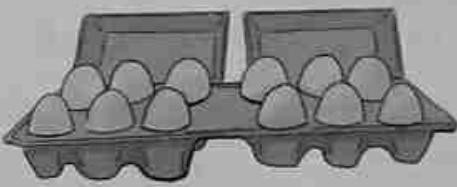
Let your friend try to answer your questions from the graph.

Mass stories

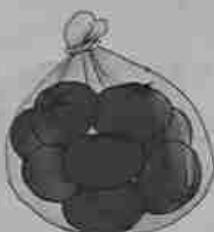
Example



300g



200g



1kg 500g

Mr Tsoro bought the above items at the market. How much is the total mass he is carrying?

$$300\text{g} + 200\text{g} + 1\text{kg } 500\text{g} = 2\text{kg}$$

Hence, Mr Tsoro is carrying goods with a total mass of 2kg.

Practice exercise 5

1. Mrs Khumalo carried from the store 500g of tea, 2 kg 500g of sugar and 5 kg mealie meal. How much did she carry altogether?
2. Aunt Tracy's family ate $3\frac{1}{2}$ kg of a 5 kg bag of rice. How much is left in the bag?
3. Mother bought ten packets of flour each with a mass of 2 kg 500g. What was the mass of the ten packets together?

4. A seed farmer put 5 000 g of seed in four equal packets. How many kilograms of seed did each packet contain?
5. Mr Sithole has 5 kg of vegetables in a basket. He gives 1 kg 250g of carrots to a friend, and 1 kg 500g of cabbage to another. How much has he in her basket now?
6. A butcher put 3 kg 650g of meat on the scale. He cut off the fat and the meat's mass was 2kg 855g. What was the mass of the fat?
7. Two boxes of fruit had a mass of $2\frac{1}{2}$ kg each. The empty boxes had a mass of 250g altogether. What was the mass of the fruit?
8. 4 kg of sweets are put into 125g packets. How many packets are there?

End of unit assessment

Multiple choice

1. $1\ 000\ \text{g} = \square\ \text{kg}$
A. 500 B. 100 C. 10 D. 1
2. $5\ 000\ \text{g} = \square\ \text{kg}$
A. 5 B. 50 C. 500 D. 5 000
3. $7\ \text{kg}\ 750\ \text{g} = \square\ \text{g}$
A. 1 450 B. 750 C. 7 750 D. 7 000 g
4. From 3kg 250 g take 1 kg 750 g.
A. 1 kg 500 g B. 2 kg 500g C. 2 kg 750 g D. 3 kg 500 g
5. $500\ \text{g} \times 5 = \square$
A. 250 g B. 1000 g C. 2 500 g D. 25 000 g
6. $4\ 750\ \text{kg} + 3\ 150\ \text{kg} = \square\ \text{kg}$.
A. 1 600 B. 1 900 C. 4 900. D. 7 900
7. $9\ 001\ \text{kg} - 7\ 019\ \text{kg} = \square\ \text{kg}$.
A. 16 020 B. 9 082 C. 7 082 D. 1 982
8. $\frac{720\ \text{g}}{8} = \square\ \text{g}$
A. 90 g B. 80 g C. 9 g D. 8 g
9. 4 kg 650g to the nearest kg = $\square\ \text{kg}$
A. 3 B. 4 C. 5 D. 10
10. $2,25\ \text{kg} = \square$
A. 2750 g B. 2 550 g C. 2 250 g D. 250 g [10 marks]

Structured questions

Convert these grams into kilograms.

1. 5 000 g
2. 10 000g

[2]

Convert these kilograms into grams.

3. 8 kg 4. 9 kg [2]
5. Mrs Mbawa carried a 5,250 kg packet of meat, a 500 g of coffee and a 750 g bottle of dovi. What mass was she carrying altogether? [1]
6. Mr Makumbe had a 50 kg bag of seed. He put it into five equal smaller bags. What was the mass of one smaller bag? [1]
7. Find the product of 5 kg 250 g and 5. [1]
8. Find the difference between 9 750 kg and 2 999 kg. [1]
9. What is the sum of 2 kg 750g and 1 kg 875 kg? [1]
10. A farmer has 2 500 kg of cattle feed. Each animal on the farm feeds on 5 kg per day. For how many days are the animals going to be fed on the cattle feed? [1]

Unit 22

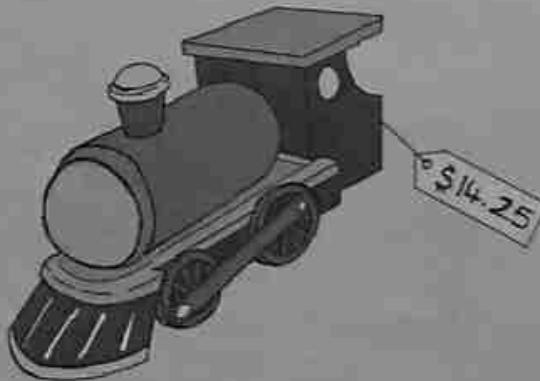
Decimal numbers

Objectives

You should be able to:

1. read and write decimals up to two decimal places
2. relate fractions with denominators 10 and 100 to decimals
3. identify place value digits in decimals
4. compare decimals
5. write decimals in ascending and descending order.

Flashback



Look at the price tag. Say to your friend the digits written.



Key words

decimal place

one decimal place

two decimal places

Tenths



The rectangle shows ten equal parts of a rectangle. Each of the part is one-tenth of the whole rectangle.

One tenth as a proper fraction is written $\frac{1}{10}$.

Change $\frac{1}{10}$ to a decimal number.

$$\frac{1}{10} = 0,1$$

One tenth as a decimal is written 0,1.

The comma is called a decimal comma and separates the units from the tenths.

Example

Change the following to decimals.

a) $\frac{4}{10}$ b) $\frac{7}{10}$

Solution

a) $\frac{4}{10} = 0,4$ b) $\frac{7}{10} = 0,7$

Activity 1

Copy and complete the following number line.

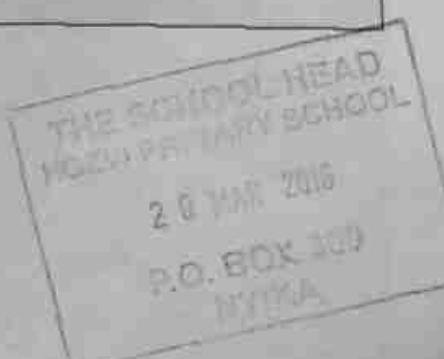


Decimal form

Change $\frac{31}{10}$ into decimal form.

$\frac{31}{10}$ means 31 tenths

$$\frac{31}{10} = 3\frac{1}{10} = 3,1$$



Practice exercise 1

Write the following tenths in a) mixed numbers b) decimal form

- | | | | | | |
|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|
| 1. $\frac{57}{10}$ | 2. $\frac{72}{10}$ | 3. $\frac{23}{10}$ | 4. $\frac{44}{10}$ | 5. $\frac{86}{10}$ | 6. $\frac{75}{10}$ |
| 7. $\frac{33}{10}$ | 8. $\frac{98}{10}$ | 9. $\frac{63}{10}$ | 10. $\frac{39}{10}$ | 11. $\frac{80}{10}$ | 12. $\frac{58}{10}$ |

Hundredths

Example

1. Change $\frac{24}{100}$ into decimal form.

$$\frac{24}{100} = 0.24$$

2. Change $7\frac{24}{100}$ into decimal form.

$$7\frac{24}{100} = 7.24$$

3. Change $4\frac{5}{100}$ into decimal form.

$$4\frac{5}{100} = 4.05$$

4. Change $\frac{405}{100}$ into decimal form.

$$\frac{405}{100} = 4.05$$

Practice exercise 2

Copy the tables and write the fractions in decimal form.

1.

Fractions	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{3}{10}$	$\frac{3}{100}$	$\frac{5}{10}$	$\frac{5}{100}$	$\frac{7}{10}$	$\frac{7}{100}$	$\frac{9}{10}$	$\frac{9}{100}$
Decimal form	0,1	0,01								

2.

Fractions	4	$4\frac{16}{100}$	$5\frac{25}{100}$	$6\frac{37}{100}$	$7\frac{41}{100}$	$8\frac{60}{100}$	$9\frac{7}{100}$	$3\frac{1}{100}$	$2\frac{77}{100}$	$1\frac{9}{100}$
Decimal form	4,0	4,16								

3.

Fractions	$5\frac{6}{100}$	$1\frac{5}{100}$	$2\frac{8}{100}$	$3\frac{15}{100}$	$4\frac{27}{100}$	$5\frac{33}{100}$	$6\frac{2}{100}$	$7\frac{47}{100}$	9
Decimal form	5,06	1,05							

4.

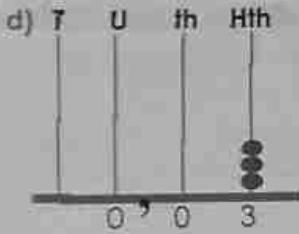
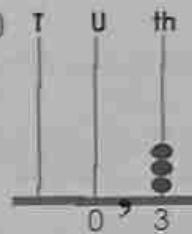
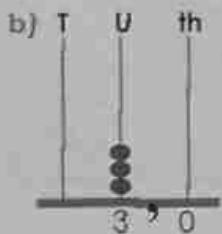
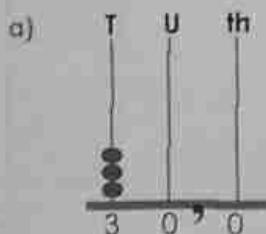
Fractions	$\frac{1}{100}$		$\frac{3}{100}$	$\frac{4}{100}$	$\frac{5}{100}$				$\frac{10}{100}$	$\frac{11}{100}$	
Decimal form	0,01	0,02				0,06	0,07	0,08	0,09		0,12 0,13

5.

Fractions	$\frac{382}{100}$	$\frac{264}{100}$	$\frac{106}{100}$	$\frac{419}{100}$	$\frac{527}{100}$	$\frac{601}{100}$	$\frac{717}{100}$	$\frac{877}{100}$	$\frac{903}{100}$	$\frac{100}{100}$	$\frac{672}{100}$	$\frac{504}{100}$	$\frac{300}{100}$
Decimal form	3.82	2.64											

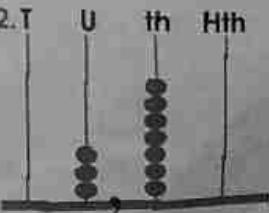
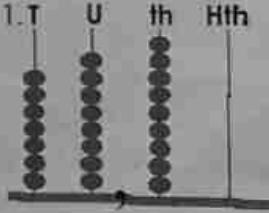
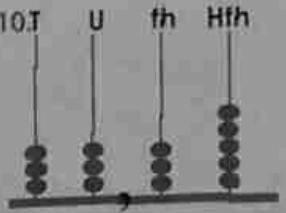
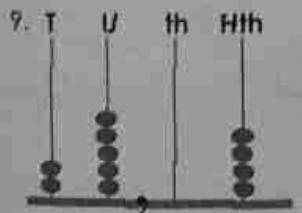
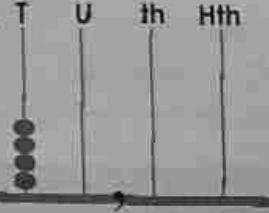
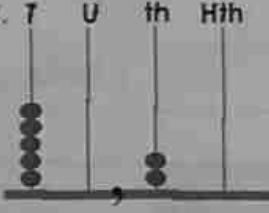
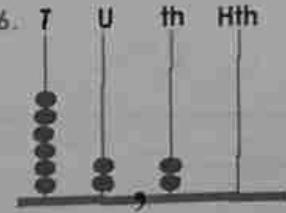
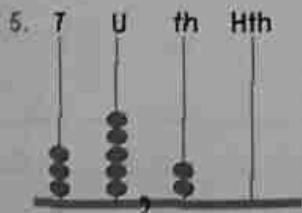
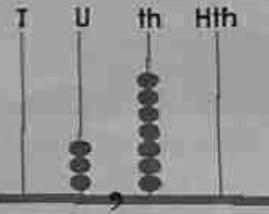
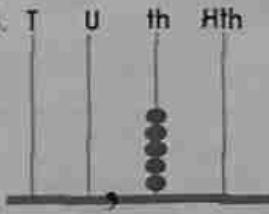
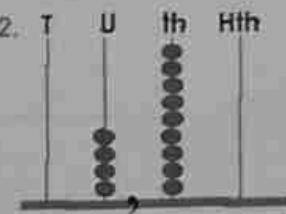
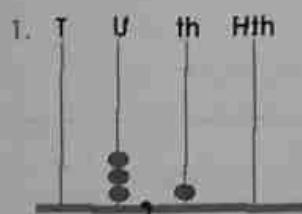
Place value

Look at the four pictures. What is the value of each picture?



Practice exercise 3

Write the numbers shown by these pictures.



Write the value of the underlined digits.

13. 31.27

14. 89.06

15. 34.58

16. 17.62

17. 52.45

18. 33.33

19. 72.98

20. 29.44

Expanded form

Look at the four pictures. What is the value of each picture?

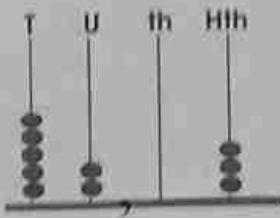
3 counters in the hundredths column = 0.03

0 counters in the tenths column = 0.00

2 counters in the units column = 2

5 counters in the tens column = 50

The number shown is $52.03 = 50 + 2 + 0 + 0.03$



Practice exercise 4

Write the decimal numbers below in expanded form.

1. 38.54

2. 45.61

3. 27.49

4. 38.51

5. 49.62

6. 50.12

7. 64.07

8. 80.04

9. 32.16

10. 93.07

11. 1.21

12. 0.76

Comparing decimal numbers

This sign > means greater than.

This sign < means less than.

The sign = means is equal to.

Example

Fill in using: greater or less.

1. $3.02 \square 3.20$

2. $0.06 \square 0.04$

Solution

1. $3.02 < 3.20$

2. $0.06 > 0.04$

Practice exercise 5

Fill in the > or < sign.

1. $4.05 \square 4.06$

2. $60.9 \square 1.2$

3. $1.25 \square 12.5$

4. $1.03 \square 1.03$

5. $9.99 \square 10$

6. $513.4 \square 13.5$

Arrange these numbers from smallest to the greatest.

7. 0.2 0.4 0.3 0.1 8. 3.5 3.2 3.7 3.3

9. 24.01 24.07 24.13 24.09

Arrange these numbers from greatest to smallest.

10. 2.9 3.1 2.8 3.2

11. 0.9 1.0 1.1 1.2

12. 83.6 82.7 81.9 84.2

End of unit assessment

Multiple Choice

1. $\frac{6}{10}$ in decimal form.
A. 0.1 B. 0.16 C. 0.6 D. 0.06
2. $\frac{25}{10}$ in decimal form.
A. 2.5 B. 0.25 C. 5.2 D. 25.0
3. $\frac{72}{100}$ in decimal form.
A. 1.1 B. 0.72 C. 10.01 D. 10.1
4. Fill in using $>$, $=$, $<$. $0.25 \square 0.28$
A. 12.25 B. 10.25 C. 12.05 D. 25.12
5. 7.23 in expanded form.
A. $7 + 0.2 + 0.03$ B. $7 + 0.02 + 0.03$
C. $7.2 + 0.03$ D. $3 + 0.2 + 0.07$
6. $3\frac{37}{100}$ in decimal form.
A. 3.07 B. 3.37 C. 3.73 D. 7.03
7. 45.29 in expanded form.
A. $45 + 0.2 + 0.9$ B. $40 + 5 + 0.2 + 0.09$
C. $20 + 9 + 0.45$ D. $35 + 0.2 + 0.09$
8. $\frac{2}{10}$ in decimal form.
A. 0.1 B. 0.2 C. 0.02 D. 2.0
9. $\frac{36}{10}$ in decimal form.
A. 3.1 B. 3.16 C. 3.6 D. 3.06
10. $\frac{4}{100}$ in decimal form.
A. 0.4 B. 0.40 C. 0.04 D. 4.00 [10 marks]

Structured questions

Complete the missing numbers.

1. 0.45 0.46 □ 0.48 □ 2. 5.09 □ 5.11 □ 5.13 [2]

Arrange the following decimal numbers

a) in ascending order b) in descending order

3. 0.06 0.08 0.10 0.04	4. 1.02 1.20 0.21 0.12	[4]
5. 4.1 3.5 2.4 1.8	6. 4.3 2.1 3.5 2.6	[4]

Unit 23

Rounding off decimal numbers

Objectives

You should be able to:

1. round off decimals to the nearest unit and tenth.

Flashback

Where are decimal numbers used in everyday life?



Key words

numerator denominator proper fraction

Approximate decimals

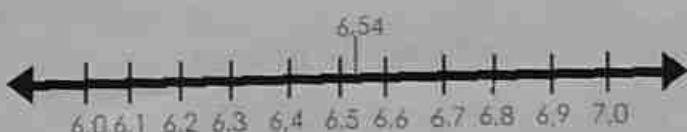
A reading book costs \$6.54.

Mother asked Prisca and Themba the price of the book.

Themba says about \$7.00 and Prisca says about \$6.50.

Example

Approximate the price of the book to the nearest a) whole number.



When rounding off decimals to the nearest whole number. We look at the tenths column. If the digit in the tenth column is below 5. We round down hence the answer would be \$6.00. But if the number in the tenths column is 5 or above 5 we round up and the answer is \$7.00. Hence, Themba was correct the book cost \$7.00 to the nearest whole number.

Practice exercise 1

Round off the decimal numbers below to the nearest whole number.

- | | | | | | |
|---------|---------|----------|-----------|-----------|-----------|
| 1. 3.2 | 2. 3.8 | 3. 4.1 | 4. 3.26 | 5. 7.65 | 6. 9.4 |
| 7. 5.38 | 8. 3.42 | 9. 47.27 | 10. 24.11 | 11. 33.56 | 12. 13.54 |

Rounding off to the nearest tenth

The price of a reading book is \$6.54.

Mother asked Prisca and Themba the price of the book
Themba says about \$7.00 and Prisca says about \$6.50



When rounding off decimals to the nearest tenth. We look at the hundredths column. If the digit in the hundredths column is below 5. We round down hence the answer would be \$6.50.

But if the number in the hundredths column is 5 or above 5 we round up and the answer is \$6.60.
Hence, Prisca was correct the book cost \$6.60 to the nearest tenth.

Practice exercise 2

Round off the decimal numbers below to the nearest tenth.

- | | | | | | |
|----------|----------|-----------|------------|-----------|-----------|
| 1. 4.12 | 2. 7.18 | 3. 3.48 | 4. 5.72 | 5. 8.16 | 6. 10.45 |
| 7. 8.432 | 8. 5.358 | 9. 154.72 | 10. 145.85 | 11. 72.67 | 12. 18.23 |

Practice exercise 3

Copy and complete the table below.

	Number	Round off to the nearest whole number	Round off to the nearest tenth
1.	2.85		
2.	1.09		
3.	0.99		
4.	8.98		
5.	4.85		
6.	6.52		
7.	10.01		
8.	18.27		
9.	128.52		
10.	802.01		
11.	6.86		
12.	32.72		

Number stories

Example

A queen cake cost \$0,35. What is the cost of the queen cake to the nearest tenth?

Solution

A queen cake is \$0.40 to the nearest tenth.



Practice exercise 4

1. Round off the cost of a packet of apples to the nearest unit if the packet costs \$2,82.
2. Mr Mpilo walked 1,64km to get to the bus station. Round off the distance he walked to the nearest tenth.
3. A tailor had 3,2 metres blue material and 4,45 metres green material. What is the estimate material for both materials altogether to the nearest tenth.
4. Spiwe managed to jump 0,64 metres in high jump. Round off the length to the nearest tenth.
5. Kupakwashe threw a discuss for 2,75 metres. Round off the distance to the nearest unit then to the nearest tenth.



End of unit assessment

Multiple choice

Round off the decimal numbers below to the nearest whole number.

1. 4.9
A. 4.8 B. 5 C. 6 D. 4.0
2. 46.27
A. 46 B. 47 C. 46.30 D. 46.20

Round off the decimal numbers below to the nearest tenth.

3. \$ 5.75
A. \$ 5.00 B. \$ 6.00 C. \$ 5.70 D. \$ 5.80
4. 163.72
A. 163.70 B. 163.00 C. 163.75 D. 164
5. 6.182
A. 7.000 B. 6.800 C. 6.200 D. 6.700
6. 9.34
A. 9.35 B. 10.00 C. 9.30 D. 9.40

Answer the questions below.

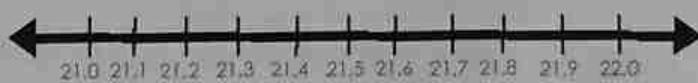
7. Round off \$0.48 to the nearest tenth.
A. \$0.50 B. \$0.45 C. \$0.40 D. \$0.48
8. Round off the cost of a packet of biscuits to the nearest unit. If the packet costs \$3.45.
A. \$3.00 B. \$3.50 C. \$4.00 D. \$3.40
9. A bucket holds 8.4 litres and a jug holds 3.75 litres. What is the estimated value for both materials to the nearest tenth.
A. 4 litres and 8 litres B. 3.80 litres and 8 litres
C. 3 litres and 7 litres D. 3.70 litres and 8.5 litres
10. Round off 12.84 to the nearest whole number.
A. 12.00 B. 11.00 C. 12.80 D. 13.00

[10 marks]

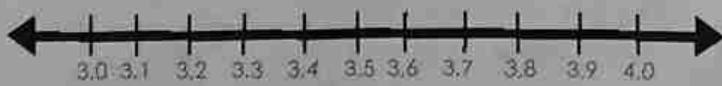
Structured questions

Round off the following marked X to the nearest whole number.

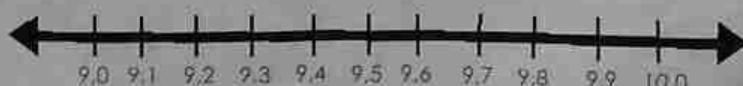
1. **X** [2]



2. **X** [2]



3. **X** [2]



Answer with True or False

4. \$7, 55 to the nearest tenth is equal to \$7, 60.
5. 5,421 litres to the nearest tenth is equal to 5,500 litres.

[2]

[2]

Unit 24

End of term 2 assessment

Paper 1: Multiple choice

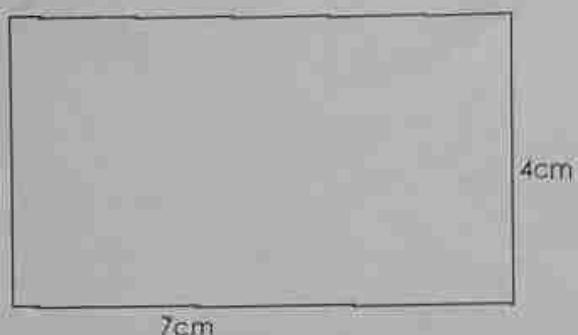
Instructions to candidates.

- a) Answer **all** questions.
b) If more than one answer is written for a question, the answer will be regarded as wrong.

1. What is the value of four in 345?
A. 4 B. 40 C. 400 D. 4 000
2. 134 to the nearest hundred is _____.
A. 130 B. 100 C. 200 D. 135
3. $31\text{mm} = \square\text{cm}$
A. 0.31 B. 31 C. 3.1 D. 310
4. $n + 168 = 1\,000$ The value of $n = \square$
A. 932 B. 1 168 C. 168 D. 832
5. $\frac{2}{4} + \frac{2}{4} = \square$
A. $\frac{1}{4}$ B. $\frac{2}{4}$ C. 1 D. 4
6. $\frac{2}{3}$ of a day in hours = \square hours.
A. 16 B. 8 C. 24 D. 48
7. Mr Mpala gave $\frac{1}{4}$ of \$5,00 to his daughter Kudzai. How much did Kudzai get?
A. \$3,75 B. \$1.25 C. \$2,50 D. \$4,00
8. Nine packets of sweets cost \$4,86. One packet costs.
A. \$0,56 B. \$0,45 C. 45c D. 54c
9. If one bag of rice cost \$5,80. What is the cost of 6 bags of rice?
A. \$0,96 B. \$11,80 C. \$34,80 D. \$12,76
10. How many times can 4 be taken away from 24?
A. 6 B. 20 C. 5 D. 4
11. Thabiso wrote \$1,50 instead of \$1,05. By how many cents was his answer wrong?
A. 255c B. 155c C. 55c D. 45c

12. $3\frac{3}{4} l = \square ml$

- A. 3 250 B. 3 125 C. 750 D. 3 750



13. What is the perimeter of the shape?

- A. 22cm^2 B. 22cm C. 28cm^2 D. 28cm

14. A shape with four equal sides is a _____.

- A. rectangle B. circle C. square D. triangle

15. 0.68 to the nearest whole number.

- A. 7 B. 0.7 C. 0.6 D. 1.0

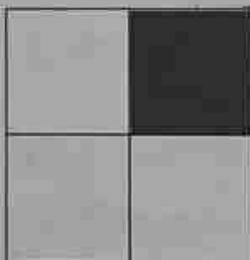
16. $14.75 - 9.9 = \square$

- A. 13.76 B. 4.85 C. 14.76 D. 137.6

17. Replace \square to make the statement correct. $2 \times \$5 \square \10

- A. > B. < C. = D. \div

18.



What fraction is unshaded?

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. $\frac{2}{3}$

D. $\frac{3}{4}$

19. $2\text{h } 40\text{min} = \square$

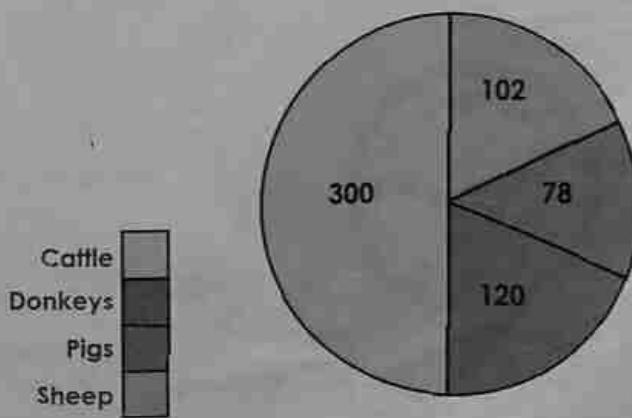
- A. 160min B. 170min C. 180min D. 190min

Use the price list for number 20 and 21.

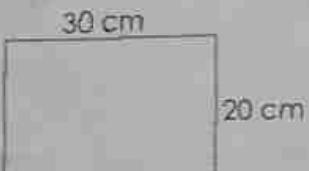
Hammer	Saw	Chisel	Screw driver	Axe
\$4.05	\$6.45	\$2.20	\$3.15	\$1.95

20. The most expensive tool is _____.
 A. Hammer B. Saw C. Axe D. Chisel
21. What is the cost of 10 chisels?
 A. \$0.22 B. \$220.00 C. \$22.00 D. \$20,20
22. Find the sum of the odd numbers between 10 and 20.
 A. 30 B. 65 C. 45 D. 75
23. _____ is a multiple of 8.
 A. 106 B. 96 C. 76 D. 86
24. 10 years = \square .
 A. year B. century C. decade D. fortnight
25. $\frac{8}{10} - \frac{4}{10} = \frac{\square}{\square}$
 A. $\frac{2}{5}$ B. $\frac{6}{10}$ C. $\frac{3}{10}$ D. $\frac{4}{5}$
26. A shape with two flat faces and one curved face is called _____.
 A. sphere B. cylinder C. cube D. rectangular prism
27. 72 hours = \square
 A. 4 days B. 3 days C. 2 weeks D. 1 hour
28. What is the place value of 5 in the number 5 001?
 A. ten thousand B. thousand C. hundred D. units
29. 5 325 people live in Chegutu. 3 769 are adults. How many are children?
 A. 1 556 B. 2 556 C. 9 094 D. 1 566
30. There are 240 eggs to be packed into 1 dozen packs. How many packs will be needed?
 A. 2 B. 200 C. 20 D. 21
31. The distance round a shape is _____.
 A. Area B. perimeter C. radius D. length
32. $\frac{7}{100} \times 2 = \square$
 A. $\frac{7}{100}$ B. $\frac{5}{100}$ C. $\frac{7}{50}$ D. $\frac{35}{100}$
33. How many days are there in the first 3 months of a leap year?
 A. 91 B. 101 C. 90 D. 93

Use the pie chart for question 34 and 35. The pie chart shows animals in Makumbe village. There are 600 animals in the village.



34. How many of the animals are sheep?
A. 102 B. 78 C. 120 D. 300
35. How many donkeys are in Makumbe village?
A. 300 B. 150 C. 120 D. 108



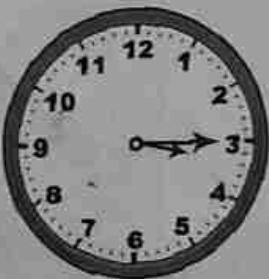
36. Find the perimeter of rectangle above.
A. 100 cm B. 50cm C. 100cm² D. 80cm



37. The name of the shape is _____.
A. cylinder B. cube C. rectangular prism D. sphere
38. Share 56c between Kuda and Fadzi. Each one gets _____.
A. 21c B. 23 c C. 28c D. 56c

39. $\frac{25}{100} = \square$
A. $\frac{1}{10}$ B. $\frac{1}{8}$ C. $\frac{5}{10}$ D. $\frac{1}{4}$
40. $\frac{5}{6}$ of 4 = \square
A. $3\frac{2}{3}$ B. $\frac{5}{2}$ C. $2\frac{1}{3}$ D. $3\frac{1}{3}$

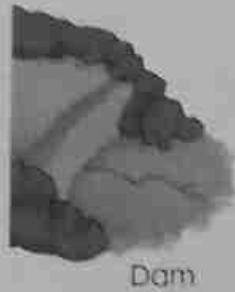
41. The clock face shows



- A. 12 O'clock B. $\frac{1}{4}$ past 12 C. 3 O'clock D. $\frac{1}{4}$ past 3

42. In a school of 400 children, $\frac{5}{8}$ are girls. How many boys are at the school?
 A. 250 B. 350 C. 150 D. 50
43. The perimeter of a square kroal is 216m. What is the length of one side?
 A. 45m B. 54m C. 108m D. 16m
44. Reduce 620 by 590
 A. 1210 B. 130 C. 30 D. 170
45. How many 4c stamps can be bought with \$2.00?
 A. 25 B. 50 C. 40 D. 204

46.



Dam



School



Home

N



Church

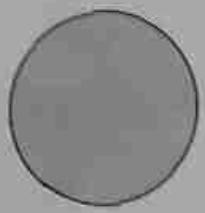
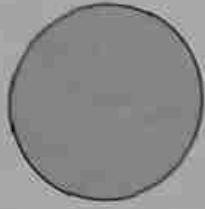
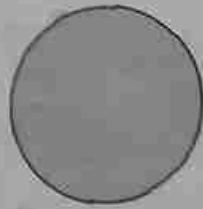


Shops

What is the direction of the Shops from the home?

- A. South B. East C. West D. North

47. The picture shows



A. $\frac{7}{2}$

B. $3\frac{1}{2}$

C. $3\frac{1}{4}$

D. $4\frac{1}{2}$

48. Find $\frac{3}{5}$ of \$3.45.

A. \$4.50

B. \$2.38

C. \$1.58

D. \$2.07

49. Change $2\frac{1}{4}$ hours to minutes.

A. 135 minutes

B. 120 minutes

C. 75 minutes

D. 45 minutes

50. $XLV = \square$

A. 5

B. 15

C. 45

D. 50

Paper 2: Structured questions

Section A

Answer all questions in this section. (25 marks)

1. a) State the value of the underlined digit in the number 8 625. [1]
b) Simplify $\frac{3}{4} - \frac{2}{4}$. [1]
2. a) Find the sum of 16 and 27. [2]
b) Find the product of 8 and 9. [2]
3. Simplify a)

	H	T	U
	7	2	5
+	2	2	8

 b)

1	1
6	8
-	3
	9

 [4]
4. Find $\frac{1}{2}$ of \$100.00. [2]
5. What is the time shown on the clock face below? Write it in 2 ways. [2]



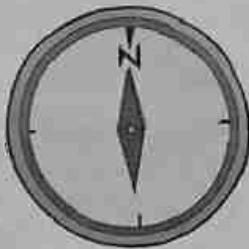
6. A rectangle with its top side labeled "5 cm" and its right side labeled "4 cm".

- Find the perimeter of the above shape. [2]
7. Copy and complete this bill.

	\$	c
1 pair shoes	2.	57
1 pair sock	1.	44
1 hat	1.	75
Total		

[2]

8. Mary buys meat for \$3.50. She pays with two \$2 notes. What change did she get? [2]



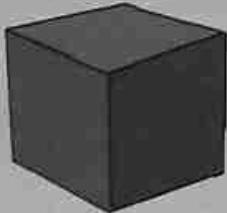
9. Complete the above compass showing south, east and west. [3]
10. If the arrow pointing to the South moves two right angles it will be facing _____. [1]

Section B

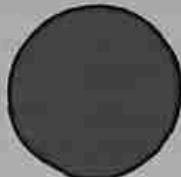
Answer any four questions in this section.

11. Mary lives 750m from school. Tendai lives $\frac{3}{5}$ of this distance from school.
a) How far does Tendai live from school? [2]
b) What is the difference between Mary and Tendai's distance? [3]
12. An axe has a mass of 3kg 625g, a hoe 1 kg 175g and a spade 2 kg 600g.
a) What is the total mass of the tools? [2]
b) What is the difference in mass between the axe and the spade? [3]
13. Write names of plane shapes and these solid shapes?

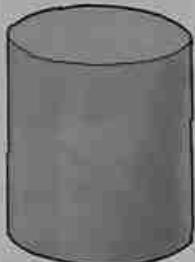
a)



b)



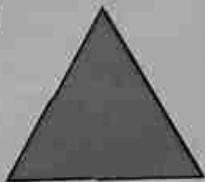
c)



d)



e)



[5]



14.

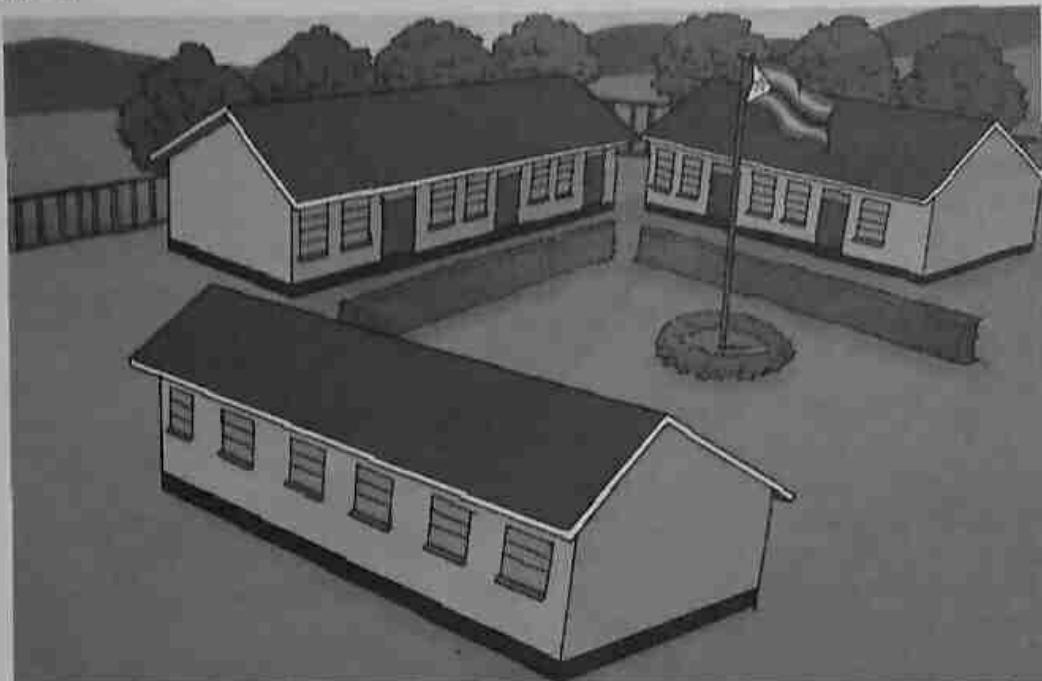
- a) What is the time shown on the clock face? Express the time in 2 ways. [2]
b) How many hours does it take for the earth to spin round once? [1]
c) How many minutes are there in an hour? [1]
d) How many hours are there from midday to midnight? [1]

15. The fuel tank of a car holds 60 litres and that of a bus holds 240 litres.

- a) What fraction is the car tank capacity to the bus tank capacity to its lowest term? [2]
b) How many car fuel tanks would be needed to fill that of a bus? [3]

Second term: Project 2

My school



School is a nice place. It is a place where you make friends, learn interesting things and learn to be a useful and helpful person in your country. To learn about the mathematics of your school you will have to count, measure and ask questions. Read the sentences below then measure, and ask questions of your friends and teachers so that you can fill in the missing words and numbers.

Copy and complete the sentences below:

My name is _____. I am _____ years old. I am in grade _____. There are _____ children in my class. _____ are boys, _____ are girls. There are more _____ than _____. In our school there are _____ children and _____ teachers. Most of the teachers are (men and women).

Our classroom is _____ metres long, _____ metres wide, _____ metres high. There are _____ desks, _____ tables, _____ chairs and _____ cupboards in our classroom. The biggest table is _____ centimetres long and _____ centimetres wide.

Our school has _____ classrooms. It is a _____ (big or small) school.
The perimeter of our school grounds is _____ of my pace.

My pace is _____ centimetres long.

The first lesson of our school day starts at _____ o'clock. The last lesson ends at _____ o'clock. Altogether this is _____ hours _____ minutes of school. There are terms every year.

Now write about the number of trees in your school grounds or the number of cars which pass your school in about 30 minutes.

Try to find out how many dollars it cost to build your school. Who provided the money? Who provided the labour?

How many dollars does it cost to buy one notebook, one pencil, one ruler and one desk?

Your teacher will help you.

Unit 25

Addition of decimal numbers

Objective

You should be able to:

- add decimals up to two decimal places.

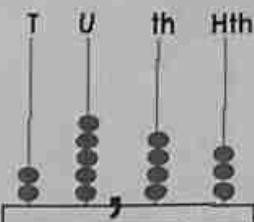
Flashback

In this unit you will write numbers up to two decimal places and identify place values of digits.

Key words

 decimal place one decimal place two decimal place

Place value



The place values of the numbers are as follows: 2 Tens 5 Units 4 tenths 3 hundredths.
The number above has 2 decimal places.

Examples

Write in decimal form.

a) $\frac{1}{10} = 0,1$

b) $\frac{2}{100} = 0,02$

Practice exercise 1

Convert the following fractions to decimals.

$$1. \frac{3}{10} = \square$$

$$2. \frac{4}{10} = \square$$

$$3. \frac{5}{10} = \square$$

$$4. \frac{8}{10} = \square$$

$$5. \frac{9}{10} = \square$$

$$6. \frac{9}{100} = \square$$

$$7. \frac{15}{100} = \square$$

$$8. \frac{89}{100} = \square$$

$$9. \frac{125}{100} = \square$$

$$10. \frac{257}{100} = \square$$

$$11. \frac{455}{100} = \square$$

$$12. \frac{785}{100} = \square$$

$$13. \frac{952}{100} = \square$$

$$14. \frac{899}{100} = \square$$

$$15. \frac{999}{100} = \square$$

Adding decimal numbers

Examples

$$1. 0,7 + 0,2 = \square$$

$$2. 10,37 + 0,26 = \square$$

Solution

1.

U		th
	0	7
+	0	2
	0	9

$$0,7 + 0,2 = 0,9$$

2.

	+	U	th	th	th
	+	1	0	3	7
			0	2	6
		1	0	6	3

$$10,37 + 0,26 = 10,63$$

Practice exercise 2

Do the following.

1.

0	6
+	0
1	5

2.

0	7	9
+	2	3
	2	7

3.

3	2	5
+	6	2
	9	4

4.

7	7	3
+	5	4
	2	1

5.

	9	6	5
+	4	6	9
	8	9	7

6.

	2	4	7
+	9	7	8
	1	0	4

7.

	9	7	8
+	8	0	7
	2	2	3

8.

	7	0	9
+	8	0	6
	3	4	5

9.

	9	7	8
+	1	9	7
	6	3	5

10.

	4	8	7
+	5	3	4
	7	0	9

Practice exercise 3

Please align the decimal commas so as to add correctly.

1.

	8	9	5	2
+	6	9	5	6

2.

	9	7	8	7
+	5	3	8	9

3.

	6	6	4	1
+	3	1	9	0

4.

	3	5	9	8
+	7	5	9	2

5.

	1	6	5	4
+	9	2	7	6

6.

	1	0	8	5
+	4	4	1	9

7.

	1	3	0	5
+	2	0	7	8
	3	6	2	9

8.

	9	8	7	8
+	3	3	6	7
	2	4	0	1

9.

	8	7	0	7
+	2	2	0	4
	6	4	1	3

10.

	4	3	6	5
+	1	2	0	9
	5	3	9	8

Practice exercise 4

Please align the decimal commas so as to add correctly.

1.

	H	T	U	D	100
+	2	3	0	9	5
			0	7	5

2.

	H	T	U	D	100
+	4	6	7	9	0
	1	8	7	5	7

3.

	H	T	U	D	100
+	6	6	0	4	5
	4	0	5	6	5

4.

	H	T	U	D	100
+	5	5	9	0	5
	3	4	0	0	9

5.

	H	T	U	D	100
+	2	1	5	9	9
	7	9	8	5	5

6.

	H	T	U	D	100
+	9	6	7	3	
	5	6	4	0	9

7.

	H	T	U	D	100
+	1	3	2	5	0
	7	5	4	2	3

8.

	H	T	U	D	100
+	8	5	6	9	8
	5	7	5	6	9

9.

	H	T	U	D	100
+	6	7	0	9	9
	1	0	0	0	1

10.

	H	T	U	D	100
+	8	7	8	5	5
	2	1	0	0	9

Practice exercise 5

Do the following.

- Paida has 9.05 m of cloth. Her mother has 12.05 m. Altogether they have _____ m of cloth.
- At an athletics competition Mr Dzete gave his children money to buy some refreshments. Kundai received \$5.70 , Ellen got \$8.90 , Takunda got \$ 4.06 and Paidha got \$2.99. How much money did he give them altogether?
- Tariro was given three boxes with ARVs tablets. Each box weighed differently from the other. Box A had a mass of 0.02kg , Box V weighed 0.20 kg and Box R weighed 1.22 kg. What is the total mass of the three ARV boxes of tablets?
- A fisherman caught three fish. They weighed 2.54 kg , 4.05 kg and 5.005kg . The total mass of the fish was _____ kg.

5. A child pays \$5.95 and the father pay \$10.50 to travel by bus from Chegutu to Bulawayo. Altogether they paid \$ _____
6. Two sides of a field measure 45.50 m and 55.65 m . How much is this altogether?
7. Mr Chikonas sold two goats at \$25.50 each and a cow for \$595.45. How much did he receive altogether?
8. What was the cost of the two goats?
9. Mrs Mpala is carrying a baby with a mass of 12.15kg on her back and a 16.55kg bundle of wood on her head. How much was she carrying altogether?
10. At a farm Mr Gomwe put milk in three containers. A drum had 210.5 litres of milk. A big clay pot had 55.5 litres and a gallon had 25.10 litres. Mr Gomwe had _____ litres of milk.

End of unit assessment

Multiple choice

1. $0.55 + 0.7 = \square$
A. 0.25 B. 1.25 C. 1.50 D. 1.52
2. $0.26 + 4.54 = \square$
A. 4.8 B. 4.08 C. 2.48 D. 5.8
3. $245.98 + 4.88 = \square$
A. 25.08 B. 25.86 C. 250.86 D. 256.08
4. $\$54.90 + \$64.50 = \square$
A. \$119.40 B. \$120.40 C. \$119.90 D. \$190.19
5. $76.95\text{kg} + 305.76\text{ kg} = \square$
A. 380.58kg B. 38.27kg C. 382.71kg D. 381.71 kg
6. $0.45\text{ m} + 10.05\text{ m} + 1.55\text{ m} = \square\text{ m}$
A. 12.05 B. 11.05 C. 10.05 D. 12.50
7. A farmer sold 100.50 litres of milk on Thursday and 55.25 litres on Friday. How many litres did he sell altogether?
A. 155.50 B. 125.50 C. 155.75 D. 100.75
8. Mrs Khumalo bought a hoe for \$10.75 and a shovel for \$19.90. How much did she pay altogether?
A. \$10.75 B. \$19.90 C. \$30.65 D. \$36.30
9. Find the total of \$0.76 ; \$9.65 and \$45.54.
A. \$55.95 B. \$10.41 C. \$55.19 D. \$ 50.91
10. What is the sum of 0.6 ; 0.1 and 0.8?
A. 1.5 B. 0.7 C. 0.9 D. 1.0

Structured questions

1. Tinotenda goes to Gadzema primary school from Nyamashasha farm. She passes through Aquarius farm. From Nyamashasha to Aquarius farm its 1.75 km and from Aquarius farm to Gadzema primary school its 2.85 km.
 - a) How many kilometres from Nyamashasha to Aquarius?
 - b) What distance does she walk from Aquarius to Gadzema?
 - c) How many kilometres are there from Nyamashasha farm to Gadzema primary? [3]

2. Talitha bought 0.75 l of milk on Monday and 1.75 l on Tuesday. How much milk did she buy altogether? [1]
3. A bicycle costs \$78.75 and its pump costs \$5.80. What is the cost of the bicycle and the pump? [1]
4. $4.75 + 19.09 = \square$ [1]
5. $0.7 + 13.55 + 0.7 = \square$ [1]
6. $75.90 \text{ kg} + 89.95 \text{ kg} = \square \text{ kg}$ [1]
7. $123.55 \text{ m} + 405.75 \text{ m} = \square \text{ m}$ [1]
8. $0.75 \text{ l} + 515.79 \text{ l} = \square \text{ l}$ [1]

Unit 26

Subtraction of decimal numbers

Objective

You should be able to:

1. subtract decimals up to two places.

Flashback

In this unit you are expected to have a detailed understanding of subtraction of decimals up to two places.

Key words

 subtract difference one decimal place two decimal places

Subtracting decimal numbers

Example

$$1. \quad 0,9 - 0,3 = \square$$

$$2. \quad 10,5 - 1,7 = \square$$

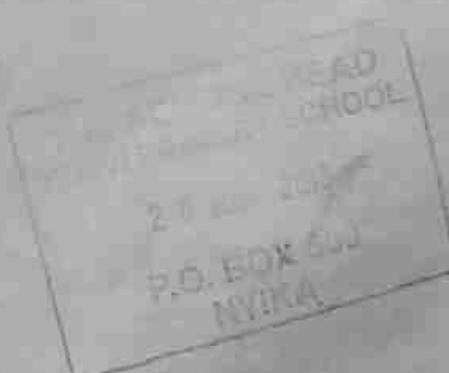
Solution

U	T	B	D
0	9		
-	0	3	
		0	6

$$1. \quad 0,9 - 0,3 = 0,6$$

U	T	B	D
	1	0	5
-		1	7
		8	8

$$2. \quad 10,5 - 1,7 = 8,8$$



Practice exercise 1

Do the following.

1.

0	8
-	0
3	

2.

0	7
-	0
5	

3.

2	9	9
-	1	0
9		

4.

5	9	5
-	0	8
9		

5.

7	1	7
-	2	3
8		

6.

8	0	9
-	6	8
7		

7.

4	7	7
-	1	6
8		

8.

1	0	8	9
-	5	9	8
5			

9.

7	9	6	9
-	9	8	1
8			

10.

2	1	9	6	8
-	2	0	8	5
0				

Subtracting decimal numbers to two decimal places

Example

$$1. \quad 64.85 - 18.09 = \square$$

$$2. \quad 92.08 - 15.24 = \square$$

Solution

6	4	8	5
-	1	8	0
4	6	7	6

9	2	0	8
-	1	5	2
7	6	8	4

$$1. \quad 64.85 - 18.09 = 46.76$$

$$2. \quad 92.08 - 15.24 = 76.84$$

Practice exercise 2

Do the following.

1.

	8	7	6	7
-	2	7	8	9

2.

	7	9	5	4
-	4	7	6	8

3.

	5	9	9	9
-	2	8	7	7

4.

	6	7	5	5
-	3	9	4	9

5.

	9	1	9	8
-	8	7	8	4

6.

	1	5	9	4
-	8	9	7	7

7.

	8	8	0	9
-	7	9	1	9

8.

	5	8	0	4
-	3	8	2	9

9.

	2	3	0	4	8
-	1	2	5	4	3

10.

	3	5	2	2	8
-	2	1	0	3	5

Practice exercise 3

Do the following.

1.

	5	9	4	0	2
-	4	1	3	0	6

2.

	4	6	2	3	1
-	1	2	1	5	3

3.

	1	5	2	2	9
-	1	0	7	9	8

4.

	9	0	7	7	6
-	4	0	4	8	9

5.

	8	9	3	2	5
-	1	4	6	3	7

6.

	4	6	7	1	4
-	2	3	9	2	1

7.

	8	8	0	9
-	7	9	1	9

8.

	5	8	0	4
-	3	8	2	9

9.

	2	3	0	4	8
-	1	2	5	4	3

10.

	3	5	2	2	8
-	2	1	0	3	5

Subtracting measures

Example

1. Mary had \$15.98. She bought a hat for \$8.77. How much money is she left with?

Solution

\$	1	5	9	8
-	\$	8	7	7
\$		7	2	1

$$\$15.98 - \$8.77 = \$7.21$$

Practice exercise 4

Do the following.

1.

\$	8	8	5	9
-	\$	2	7	6

2.

\$	2	0	2	7	6
-	\$		9	4	8

3.

\$	5	0	6	5
-	\$	1	9	4

4.

3	0	5	9	0	kg
-	2	0	9	1	kg

5.

	A	T	U	m	h	kg
-	4	0	8	7	6	kg
	3	0	6	2	4	kg

6.

	A	T	U	m	h	kg
-	9	7	9	0	8	kg
	8	0	8	4	9	kg

7.

	A	T	U	m	h	kg
-	7	0	7	3	0	kg
	5	9	9	8	8	kg

8.

	T	B	m	h	kg
-	8	9	6	0	1
	5	4	5	0	1

9.

	T	B	m	h	kg
-	6	8	0	5	m
	2	3	9	0	m

10.

	T	B	m	h	kg
-	9	9	0	8	m
	6	8	9	5	m

Subtracting stories

Example

A slaughtered bull net mass is 305.90kg. If the farmer sold 196.50kg , how much beef was left over?

Solution

Mass of bull
Mass bought
Mass leftover

	A	T	U	m	h	kg
-	3	0	5	9	0	kg
	1	9	6	5	0	kg

Practice exercise 5

- Nowadays a bicycle costs \$75,50. In 1980 the same bicycle would have cost \$20,10. How much more does the bicycle now cost?
- If cost Mrs. Sibanda \$96,25 to construct a fowl run. Mrs Nyoni's cost \$75,50. Whose fowl run cost more? By how much more did it cost?
- Lawrence spent \$2,05 during break time and Bridget spent \$1,15. How much more did Lawrence spend than Bridget?

4. Mrs Nyakura received 92.250kg of maize from the village head. She gave 45.05kg to her mother. How much had she left?
5. A bottle of cooking oil holds 2.50 litres. 1.55 litres is spilt. How much cooking oil is left?
6. Vimba walks 5.80 km to collect her ARVs from the clinic. After walking about 3.55km she rests. What distance is she still going to walk?
7. A 5kg packet of rice is torn and 1.75kg of it is lost. What is the amount of rice left in the packet?
8. Richard is 1.85m tall and his brother Nicholas is 1.56m tall. Richard is taller than Nicholas by _____ m?
9. Patricia had \$10.00 and spend \$7.59. How much change did she have left?
10. A can which holds 5 litres has 2.875 litres of petrol in it. I fill it up with petrol. How many litres do I put in?

End of unit assessment

Multiple choice

1. $4.9 - 1.7 = \square$
A. 3.2 B. 2.3 C. 3.8 D. 4.0
2. $7.66 - 3.54 = \square$
A. 4.11 B. 4.12 C. 3.12 D. 3.02
3. $78.35 - 43.13 = \square$
A. 43.22 B. 34.22 C. 35.22 D. 45.22
4. $98.07 - 77.09 = \square$
A. 18.98 B. 21.89 C. 20.89 D. 20.98
5. $569.76 - 352.03 = \square$
A. 217.73 B. 317.73 C. 217.37 D. 17.73
6. $789.56\text{kg} - 557.55\text{kg} = \square$
A. 223.10 B. 322.01 C. 203.01 D. 232.01
7. $\$963.59 - \$569.99 = \square$
A. \$493.60 B. \$393.90 C. \$393.60 D. \$593.60
8. Sindy had \$507.80. She spent \$206.39 on clothes. How much change has she?
A. \$401.41 B. \$301.41 C. \$201.41 D. \$101.41
9. A pole is 9.75m long. A piece 3.68m is cut off. what is the length of pole left?
A. 7.07m B. 6.07m C. 5.07m D. 4.07m
10. Kundai wants \$900.50 for school fees. She writes a letter to her father makes a mistake of asking for \$650.50. Her fees has a shortfall of how much?
A. \$450 B. \$350 C. \$250.50 D. \$250

[10 marks]

Structured questions

1. $0.75 - 0.39 = \square$ [1]
2. $10 - 4.7 = \square$ [1]
3. $54.95 - 29.31 = \square$ [1]
4. $101.75 - 87.01 = \square$ [1]

5. $545.65 - 201.23 = \square$ [1]
6. $676.59 - 435.25 = \square$ [1]
7. $505.46\text{m} - 202.11\text{m} = \square$ [1]
8. $\$645.12 - \$205.75 = \square$ [1]
9. Mrs Chikanya has to drive a journey of 200 km. What distance is left after travelling 115.25 km? [1]
10. Ellen had \$25.00. She used \$18.75. How much does she have left? [1]

Unit 27

Money

Objectives

You should be able to:

1. express money in decimal form
2. write money in expanded form
3. convert cents to dollars and vice versa
4. calculate change within the range.

Flashback

Money is used as a medium of exchange. It is used to buy things.



Key words

value

bill

change

Convert cents to dollars

$$100 \text{ cents} = \$1$$

We can write one dollar as \$1 or \$1.00.

Examples

How many dollars are in a) 485c b) 145c

Solutions

$$\text{a)} \frac{485}{100} = \$4.85$$

$$\text{b)} \frac{145}{100} = \$1.45$$

Practice exercise 1

Convert the following to dollars.

- | | | | | | |
|----------|----------|----------|----------|----------|----------|
| 1. 300c | 2. 700c | 3. 200c | 4. 900c | 5. 400c | 6. 600c |
| 7. 500c | 8. 800c | 9. 653c | 10. 176c | 11. 724c | 12. 308c |
| 13. 935c | 14. 417c | 15. 862c | 16. 91c | 17. 8c | 18. 577c |
| 19. 63c | 20. 999c | | | | |

Convert dollars to cents

\$1.00 = 100 cents

Example

\$3.65 = 365 cents

\$7.09 = 709 cents

Practice exercise 2

Try these

- | | | | | |
|------------|------------|------------|------------|-------------|
| 1. \$4.92 | 2. \$8.37 | 3. \$6.40 | 4. \$5.03 | 5. \$7.00 |
| 6. \$20.12 | 7. \$38.25 | 8. \$67.52 | 9. \$89.05 | 10. \$97.90 |

Money in expanded form

Example



The money above is \$3.54. In expanded form.

\$3.54 = \$3.00 + \$0.50 + \$0.04

Practice exercise 3

Expand the following numbers.

- | | |
|------------------------------------------------------------|----------------------------------------------------------|
| 1. $\$15.72 = \$10.00 + \$\square + \$\square + \$\square$ | 2. $\$38.06 = \$\square + \$8.00 + \\square |
| 3. $\$5.25 = \$\square + \$\square + \0.05 | 4. $72.33 = \$70.00 + \$\square + \$\square + \\square |
| 5. $94.32 = \$\square + \$\square + \$\square + \\square | 6. $\$ \square = \$8.00 + 0.40 + \$0.01$ |
| 7. $\$ \square = \$40.00 + \$0.40 + \0.04 | 8. $\$ \square = \$70.00 + \$6.00 + \0.50 |
| 9. $\$ \square = \100.00 | 10. $\$ \square = \$30.00 + \$7.00 + \0.05 |

Change

Examples

- John buys a packet of sugar for \$1.47. He gives the storekeeper a \$2 note. The storekeeper subtracts \$1.47 from \$2.00.

\$	C	
2	0	0
-	2	5 7
	5	3

The change is 53 cents.

- Mr Gondo buys a hat for \$1.93. He gives the storekeeper a \$10 note. The storekeeper gives change by subtracting \$1.94 from \$10.00.

	\$	C	
	1	0	0
-	1	2	10 4
	8	0	6

The change is \$8.06.

Practice exercise 4

Giving change.

- Taurai buys a pencil for 50c with a \$1. The change is _____.
- Lawrence buys a toy car for \$6.75 with a \$10 note. What is the change?
- Sibongile buys a pair of trousers for \$15.50 with a \$20 note. Her change is _____.
- Find the change when a farmer buys maize seed for \$48.95 with a \$50 note.
- Mrs Gomwe buys a plough for \$89.75 with a \$100 note. Her change is _____.

Buying and selling



\$2,00



\$1.85



\$1,35



\$3,20



\$3,25



\$1,20



\$0,50



\$2,60



\$1,00

Example

Mrs Kufa wants to bake bread she buys the following.

	\$	c
1 Flour	2	00
1 Sugar	1	85
1 Salt	0	45
1 Yeast	0	50
1 Margarine	3	25
Total	8	05

Her total bill is \$8.05

Practice exercise 5

Write bills for the following.

1. 1 packet sugar
1 bottle vanilla essence
6 eggs.
2. 1 packet flour
1 packet raisins
1 packet margarine.
3. 1 packet yeast
1 packet flour
1 packet sugar
6 eggs.
4. 1 packet margarine
1 bottle vanilla essence.
5. 1 packet baking powder
1 carton milk
1 packet raisins.

End of unit assessment

Multiple choice

1. 850 cents = \$
A. \$8.05 B. \$50.80 C. \$85.00 D. \$8.50
2. \$5.75 = cents
A. 57 B. 75 C. 575 D. 755
3. 120 cents =
A. \$1.02 B. \$20.10 C. \$12.00 D. \$1.20

4. Tendai bought books for \$7.55. He gave the shopkeeper \$10.00. What was his change?
 A. \$2.45 B. \$2.55 C. \$7.45 D. \$17.55
5. A farmer bought the following things: A hoe \$5.00, an axe \$7.50, a chain \$6.50 and a rake \$3.50. What was the total cost of these things?
 A. \$22.50 B. \$22.00 C. \$18.50 D. \$17.50
6. The cost of a pair of trousers is \$20.25. What is the cost of 3 trousers?
 A. \$141.75 B. \$140.75 C. \$40.50 D. \$60.75
7. Ten metres of cloth cost \$50. What is the cost of one metre?
 A. 5 cents B. 50 cents C. \$5 D. \$10
8. Twenty buns cost \$1. What is the cost of one bun?
 A. 1c B. 4c C. 5c D. 21c
9. A \$10 note = \square \$5 notes.
 A. 1 B. 2 C. 4 D. 5
10. A child pays \$2.50 and a grown up person pays \$5.00 to travel from Chegutu to Harare by train. How much does it cost for Mr Chikonas, his wife and three children to travel from Chegutu to Harare?
 A. \$7.50 B. 10.50 C. \$75 D. \$85 [10 marks]

Structured questions

1. Find the difference between \$4.52 and \$5.00. [1]
2. Find the total of \$1.21, \$2.93 and \$5.34? [1]
3. I had \$100 and spent \$75.50. How much change did I get? [1]
4. The cost of 10 tins of jam was \$15.50. What was the change from \$20.00? [1]
5. Find the sum of \$57.50 and \$34.05. [1]
6. $\$25.76 = \$\square + \$\square + \$\square + \$\square$ [1]
7. $\$85.42 = \$\square + \$\square + \$\square + \$\square$ [1]
8. $\$3.93 = \$\square + \$\square + \\square [1]
9. $\$40 + 0.50 + 0.01 = \\square [1]
10. $\$5 + 0.25 = \\square [1]

Unit 28

Volume and capacity

Objectives

You should be able to:

1. convert millilitres to litres
2. convert litres to millilitres.

Flashback

You should find capacity or volume in millilitres or litres.



Key words

container millilitres litres capacity volume

Volume is the amount of space that a substance and an object occupies.

Capacity is the maximum amount of liquid that something can contain.

Volume and capacity is measured in litres. For smaller quantities millilitres are used.



We measure volume in our everyday life.

Experiment

Bring empty containers of disinfectant bottles, juice containers, milk containers, cough syrup container, electric jugs, medicine cups, cooking oil containers, lotion containers and so on.

1. Learners read capacity labels.
2. They discuss why they think we need to know capacity.

Volume



9 litres



5 litres



250ml



1 litre



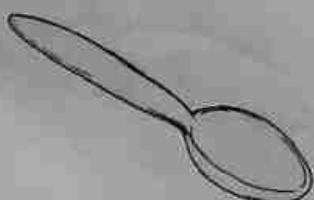
750ml

Practice exercise 1

1. Write their names in order, starting with the container which holds least.
2. How many times would the litre jug be used to fill:
 - a) the cooking pot,
 - b) the petrol can?
3. How many times would the mug be used to fill:
 - a) the jug,
 - b) the petrol can,
 - c) the cooking pot?
4. How many times would the oil bottle be used to fill:
 - a) the petrol can,
 - b) the cooking pot?
5. A car holds 42 litres of petrol. How many times would the petrol can be used to fill it?

Millilitres

$$1\,000 \text{ millilitres} = 1 \text{ litre}$$



a) 5 ml spoon



b) 250 ml cough syrup bottle

Cough mixture is measured in millilitres.

Practice exercise 2

Do the following.

- How many spoonful could you get from the 250 ml bottle?
- Tendai took two spoonful of cough mixture each time. How many ml is this?
- He took cough mixture four times a day. How many ml did he take?
- How many days will it take to finish 250 ml bottle?
- The community clinic keeps the cough mixture in a litre bottle. How many 250 ml bottles can be filled from it?

Convert millilitres to litres

Example

$$1\ 450 \text{ ml} = \frac{1450 \text{ ml}}{1000} \\ = 1.450 \text{ l}$$

Practice exercise 3

Convert millilitres to litres.

- 2 750 ml
- 6 250 ml
- 4 500 ml
- 3 150 ml
- 1 400 ml
- 5 850 ml
- 8 900 ml
- 2 350 ml
- 4 450 ml
- 5 620 ml

Convert litres to millilitres

Example

$$4\frac{1}{4} \text{ l} = 4\ 000 \text{ ml} + \frac{1}{4} \text{ of } 1\ 000 \text{ ml} \\ = 4\ 250 \text{ ml}$$

Practice exercise 4

Convert litres to millilitres.

- $2\frac{1}{2} \text{ l}$
- $1\frac{1}{4} \text{ l}$
- $4\frac{3}{4} \text{ l}$
- $3\frac{1}{10} \text{ l}$
- $6\frac{3}{10} \text{ l}$
- $2\frac{7}{10} \text{ l}$
- $8\frac{9}{10} \text{ l}$
- $2\frac{1}{5} \text{ l}$
- $6\frac{3}{5} \text{ l}$
- $7\frac{4}{5} \text{ l}$

Practice exercise 5

- How many 500 ml bottles could be filled from a 2 litre bottle?
- A spoon holds 5 ml. How many spoonful could John get out of a 100 ml bottle of cough mixture?
- A car has 19 l of petrol in its tank. Another 11 l are put in. It is now full. How much does the tank hold?
- Tendai went to the tank six times to fill a $5\frac{1}{2}$ l bucket. How many litres of water did he take from the well?
- A Farmer's cows give 8 cans of milk. Each can holds 35 litres. If the milk is shared equally between two stores, how much does each store take?
- A drum holds 130 litres of tar. How much is left after using 8 bucketful? Each bucket holds 10 litres.

End of unit assessment

Multiple choice

Convert millilitres to litres.

- $5\ 000\ ml = \square\ l$
A. 5 B. 50 C. 500 D. 5 000
- $10\ 000\ ml = \square\ l$
A. 1000 B. 100 C. 10 D. 1

Convert litres to millilitres.

- $8\ l = \square\ ml$
A. 8 B. 80 C. 800 D. 8 000
- $10\ l = \square\ ml$
A. 10 000 B. 1 000 C. 100 D. 10
- $5\frac{1}{4}\ l = \square\ ml$
A. 5 050 B. 5 150 C. 5 250 D. 5 750
- A drum holds 210 litres of tar. How much is left after using 15 bucket fulls? Each bucket holds 10 litres.
A. 25 B. 60 C. 150 D. 185
- Find the sum of 4 500 ml and 3 750 ml.
A. 8 250 B. 7 250 C. 4 250 D. 750
- $\frac{1}{2}\ l = \square\ ml$
A. 5 B. 50 C. 500 D. 5000
- $505\ ml \times 9 = \square$
A. 4 545 ml B. 3 545 ml C. 2 545 ml D. 1 545 ml
- What is the difference between 8 750 and 6 250?
A. 500 B. 1 500 C. 2 500 D. 3 500

[10 marks]

Structured questions

1. A bottle contains 750 ml of cooking oil. Mother uses 12 of these bottles in a year.
How many litres of oil does she use? [1]
2. $\frac{1}{4}\text{ l} = \boxed{}\text{ ml}$ [1]
3. $7\frac{1}{2}\text{ l} = \boxed{}\text{ ml}$ [1]
4. $8\ 500\text{ ml} = \boxed{}\text{ l}$ [1]
5. $10\ 500\text{ ml} = \boxed{}\text{ l}$ [1]
6. Rumbidzai poured $4\ 750\text{ ml}$ and $6\ 250\text{ ml}$ of water into a drum. How many litres are there in the drum? [1]
7. What is the difference between 9 825 litres and 7 650 litres? [1]
8. Find the total of 25 ml , 125 ml and 75 ml . [1]
9. 4 litres of milk filled 8 cups. How many ml of milk does each cup hold? [1]
10. Find the product of 436 ml and 2. [1]

Unit 29

More time

Objectives

You should be able to:

1. identify units of time
2. apply a.m., noon, p.m., midnight and fortnight to tell time
3. tell time to the nearest 5 minutes
4. convert time from one unit to another.

Flashback

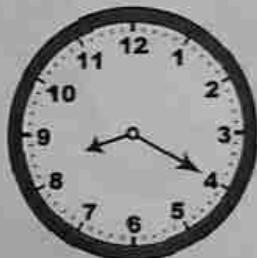
In this unit you are expected to apply the knowledge of time on different situations.



Key words

timetable journey fortnight a.m. p.m.

Telling time



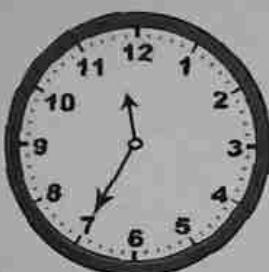
The time is 20 past 8.
Is it in the morning or evening explain why?

Fact file

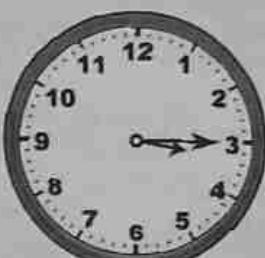
There are 12 hours on a clockface.
However, there are 24 hours in a day.
12 hours before noon.
12 hours after noon.

To describe 12 hours before noon we say 'ante meridiem', am.
To describe 12 hours after noon we say 'post meridiem', pm.

Example



11:35am



3:15pm

Practice exercise 1

Write these times in the same way. Remember to write a.m or p.m.

Morning

1. 10 past 1
2. 20 to 3
3. $\frac{1}{2}$ past 5
4. $\frac{1}{4}$ to 9
5. 25 to 11

afternoon

6. $\frac{1}{4}$ past 10
7. 5 to 8
8. 25 past 6
9. 20 to 4
10. 5 past 2

Train timetable

Leaves Kwekwe	1.40 a.m.	7.50 a.m.	11.45 a.m.	4.55 a.m.	
Journey takes	1 h 30 min	1 h 25 min	1 h 40 min	1 h 25 min	
Arrive Gweru	3.10 a.m.				

Practice exercise 2

Study the timetable and answer the questions that follow.

1. Two trains leave Kwekwe when it is dark. What time do they leave?
2. Copy the timetable and calculate the arrival time in Gweru.
3. One train arrives in Gweru from Kwekwe when you are at school. What time does it arrive?
4. Make up your own timetable. Write questions about it. Ask your friend to answer them.

Convert units of time

1 h = 60 min

Examples

1. Write 1 h 35 minutes to minutes.

Solution

$$\begin{aligned}1 \text{ h } 35 \text{ minutes} &= 60 \text{ minutes} + 35 \text{ minutes} \\&= 95 \text{ minutes}\end{aligned}$$

2. Write 87 minute to hours and minutes.

Solution

$$\frac{87}{60} \text{ minutes} = 1 \text{ hr. } 27 \text{ minutes}$$

Practice exercise 3

Write in minutes.

- 1 h 15 min
- 2 h 56 min
- 3 h 38 min
- 4 h 20 min
- 5 h 45 min

Write in hours and minutes.

- 90 min
- 130 min
- 215 min
- 265 min
- 309 min

The calendar

2017											
January			February			March			April		
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	1	2	3	4	5
May			June			July			August		
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	1	2	3	4	5
September			October			November			December		
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	1	2	3	4	5

Practice exercise 4

Do the following.

1. How many days in a week?
2. Which is (a) the first day, (b) the fourth day, (c) the seventh day of the week?
3. How many months in a year?
4. Which is (a) the second (b) the fifth (c) the eighth, (d) the twelfth month of the year?
5. Write the names of the months which have (a) 30 days, (b) 31 days.
6. Which month has neither 30 nor 31 days?
7. How many days has that month on this calendar?
8. How many weeks in the year? Count them.
9. What is the first day and the last day of the year shown on the calendar?
10. What is the first and last day of this year?

These days have been ringed on your calendar.

- | | |
|--------------------|-------------------------------------------------|
| 11. Boxing day | 12. Christmas day |
| 13. New Year's day | 14. Good Friday |
| 15. Easter Sunday | 16. The longest day of the year (most daylight) |
| 17. May day | 18. Independence day |
| 19. Heroes' day | |

Copy number 11 and do numbers 12 to 19 in the same way.

11. Boxing day is Tuesday 26th December.

Count the number of days. (include both days)

18. 10th March to the end of March.
19. 4th September to the end of September.
20. 18th February to 8th March.

Note: we write 30th June and say "the thirtieth of June"

How many?

Practice exercise 5

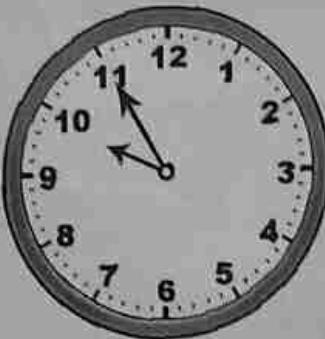
Do the following.

Hours in:	1. 2 days	2. 5 days	3. $2\frac{1}{2}$ days
	4. $3\frac{1}{4}$ days	5. $1\frac{3}{4}$ days	
Days in:	6. 72 h	7. 96 h	8. 48 h
	9. 120 h	10. 240 h	
Days in:	11. 2 weeks	12. 4 weeks	13. 7 weeks
	14. 8 weeks	15. 10 weeks	
Weeks in:	16. 21 days	17. 35 days	18. 63 days
	19. 42 days	20. 70 days	
Months in:	21. 1 year	22. 3 years	23. 5 years
	24. 7 years	25. 9 years	
Years in:	26. 24 months	27. 48 months	28. 72 months
	29. 96 months	30. 108 months	

End of unit assessment

Multiple choice

1. Another way of writing 8:45 am is _____.
A. $\frac{1}{4}$ past 8 B. $\frac{1}{4}$ to 8 C. $\frac{1}{4}$ to 9 D. $\frac{1}{4}$ past 9
2. $\frac{1}{2}$ past 4 in the afternoon can be written as _____.
A. 4:30 am B. 3:30 pm C. 4:30 pm D. 3:30 am
3. 1 hour is equal to _____.
A. 24 minutes B. 30 minutes C. 45 minutes D. 60 minutes
4. 48 hours = days.
A. 28 B. 14 C. 7 D. 2
5. 1 hour 30 minutes in minutes is _____.
A. 31 minutes B. 60 minutes C. 63 minutes D. 90 minutes
6. 450 minutes in hours is _____.
A. $7\frac{1}{2}$ h B. $6\frac{1}{2}$ h C. 5 h D. 2h
7. A fortnight is _____.
A. 7 days B. 14 days C. 21 days D. 40 days
8. A year has months.
A. 60 B. 52 C. 24 D. 12
9. What is the time shown on the clock face?



- A. 5 past 10 B. 10 past 5 C. 10:55 D. 9:55
10. How many hours and minutes are there from 7:30 to 9:15?
A. 45 min B. 1 h 15 min C. 1 h 30 min D. 1 h 45 min

[10 marks]

Structured questions

1. A clock is 5 minutes ahead. What is the correct time if it shows 5 minutes past 10. [1]
2. A bus starts a journey at 5:45 am arrives at its destination at 10:15 am. How long was its journey? [1]
3. Another way of writing 11:55 is _____. [1]

4. Draw a clock face to show $\frac{1}{2}$ past 9. [1]
5. Ellen wakes up at 5:30 am and goes to school 45 minutes later. What time does she go to school? [1]
6. A Maths test starts at 9:00 am. The test is 2 hours. At what time will it end? [1]
7. 45 minutes as a fraction of an hour is _____. [1]
8. A train arrived at the station at 3:15 pm but I arrived 20 minutes later. At what time did I arrive? [1]
9. What is $\frac{4}{5}$ of 5 hours? [1]
10. Munashe's watch is 15 minutes to 1 pm but it is 30 minutes behind. What is the correct time? [1]

Percentages

Unit 30

Objectives

You should be able to:

1. read and write fractions with a denominator of hundred
2. illustrate percentages diagrammatically
3. express half, quarters, fifths and tenths as percentages
4. use 100 square grids to express fractions as percentages.

Flashback

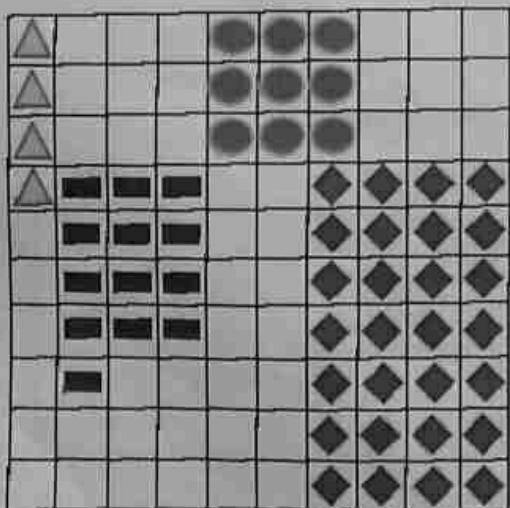
Count up to a hundred.



Key word

percentage

Fractions



Practice exercise 1

What fraction are the shaded parts of the whole square?

$$1. \triangle = \frac{\square}{\square}$$

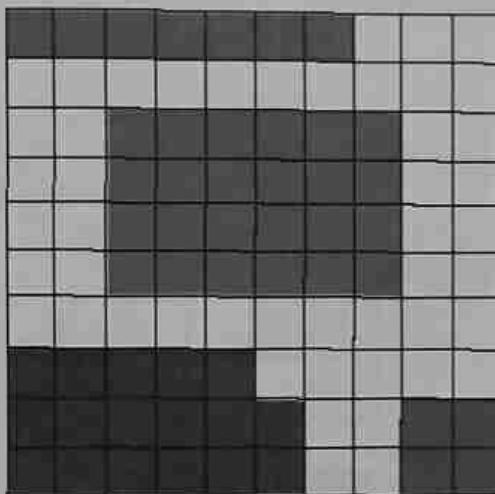
$$2. \blacksquare = \frac{\square}{\square}$$

$$3. \bullet = \frac{\square}{\square}$$

$$4. \blacklozenge = \frac{\square}{\square}$$

$$5. \square = \frac{\square}{\square}$$

Percentages



This grid has 100 squares. 7 square out of 100 squares are shaded blue. It is seven hundredth of the large square.

We write $\frac{7}{100}$.

We can also write 7 parts of 100 parts as a percentage.

We say "Seven percent". We write 7%.

$$7\% = \frac{7}{100}$$

Practice exercise 2

1. What percent is shaded red?
2. What percent is shaded purple?
3. What percent is shaded green?
4. What percent is not shaded?

Changing fractions to percentages

Example



1. What fraction is shaded?
2. What percentage of the shape is shaded?

Solution

1. 3 out of 5 parts are shaded in fractions we write: $\frac{3}{5}$
2. $\frac{3}{5} = \frac{60}{100} = 60\%$

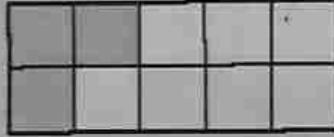
Practice exercise 3

Draw these pictures. Find the a) fraction b) percentage.

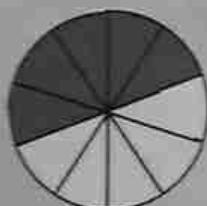
1.



2.



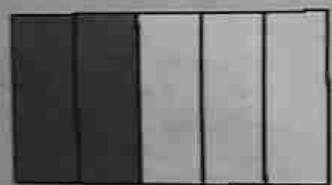
3.



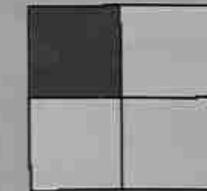
4.



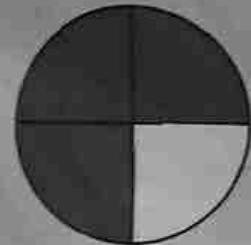
5.



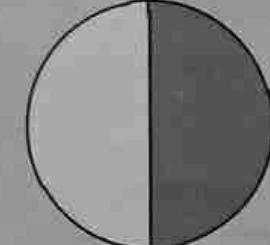
6.



7.



8.



Practice exercise 4

Write these fractions in hundredths in percentages.

Copy number 1 and do the others in the same way.

1. $\frac{1}{5} = \frac{20}{100} = 0,2 = 20\%$

2. $\frac{2}{5}$

3. $\frac{4}{5}$

4. $\frac{3}{5}$

5. $\frac{1}{10}$

6. $\frac{7}{10}$

7. $\frac{3}{10}$

8. $\frac{9}{10}$

9. $\frac{1}{2}$

10. $\frac{1}{4}$

11. $\frac{3}{4}$

12. $\frac{10}{10}$

13. $\frac{5}{5}$

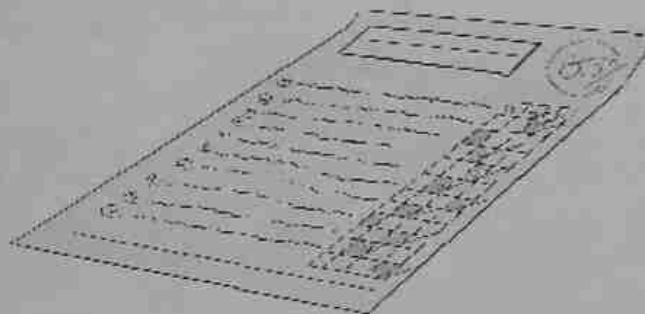
14. $\frac{2}{2}$

15. $\frac{6}{10}$

Percentages in real life

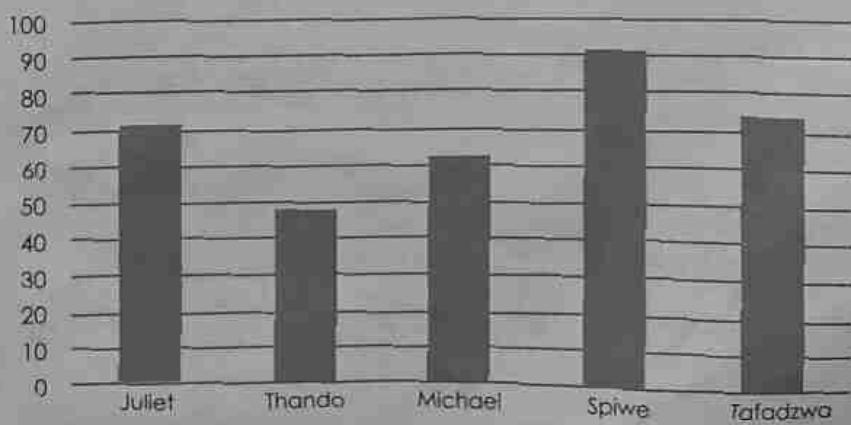
Percentages are important in everyday life.

Below are some areas where percentages are used in life.



Below is a bar graph that shows percentage marks gotten by Learners for Mass Display projects.

Percentage mark



Practice exercise 5

1. The project is marked out of what?
2. Who had the least marks?
3. Who had the most marks?
4. How many of the learners passed?
5. If an A grade is from 90 to 100%, how many learners got an A grade?

Show the following marks as percentages.

6. 5 marks out of 10
7. 6 marks out of 10
8. 10 marks out of 10
9. 79 marks out of 100
10. 87 marks out of 100
11. 91 marks out of 100

End of unit assessment

Multiple choice

1. Write $\frac{2}{5}$ as a hundredth.
A. $\frac{20}{50}$ B. $\frac{4}{10}$ C. $\frac{8}{100}$ D. $\frac{40}{100}$
2. $\frac{1}{10}$ as a percentage.
A. 10% B. 1% C. 100% D. 50%
3. $\frac{1}{2}$ as a percentage.
A. 50 % B. 5 % C. $\frac{1}{2}\%$ D. 25 %
4. Another way of writing 19 out of 100 is _____.
A. 19,00 B. 1,900 C. 0,19 D. 0,019
5. $\frac{95}{100}$ is the same as _____.
A. 95% B. 9,5 C. $\frac{95}{10}$ D. $\frac{0,95}{100}$
6. $\frac{3}{4}$ as a percentage.
A. 25% B. 75% C. 50% D. 20%
7. $\frac{7}{10} = \square$
A. 70% B. 7% C. 0,7% D. 70,0%
8. 49 cents expressed in dollar notation is _____.
A. \$0,049 B. \$ 0,49 C. \$4,90 D. \$49,00
9. Write the following in order starting with the smallest: $\frac{50}{100}, \frac{25}{100}, 60\%, 75\%$
A. $\frac{25}{100}, \frac{50}{100}, 60\%, 75\%$

B. 75%, 60%, $\frac{50}{100}$, $\frac{25}{100}$

C. $\frac{25}{100}$, 60%, 75%, $\frac{50}{100}$

D. $\frac{50}{100}$, $\frac{25}{100}$, 60%, 75%

10. Fill in the missing sign $>$, $<$ or $=$ 75% $\square \frac{3}{4}$.

- A. $<$ B. $>$ C. $=$ D. $+$

[10 marks]

Structured questions

1. $\frac{39}{100}$ as a percentage

2. $\frac{56}{100}$ as a percentage

[2]

3. $\frac{5}{10}$ as a percentage

4. $\frac{6}{10}$ as a percentage

[2]

Fill in the missing $<$, $>$ or $=$.

4. $\frac{3}{4} \square 25\%$

5. $\frac{72}{100} \square 75\%$

[2]

6. $\frac{3}{4}$ as a percentage

7. $\frac{25}{100}$ as a percentage

[2]

Show the following marks as percentages.

8. 4 marks out of 10

9. 69 marks out of 100

[2]

10. 7 marks out of 10.

[1]

Unit 31

More length

Objectives

You should be able to:

1. measure lengths to the nearest millimeter (mm), centimeter (cm) or metre (m)
2. convert units of length (mm, cm and m).

Flashback

In this unit you are expected to approximate, measure and convert units of length.



Key words

estimate convert measure

Decimal notation

$$10 \text{ mm} = 1 \text{ cm} \quad 1 \text{ mm} = \frac{1}{10} \text{ cm or } 0.1 \text{ cm}$$

Example

$$8 \text{ cm } 5\text{mm} = 8.5\text{cm}$$

Practice exercise 1

Write these centimetres and millimetres in the decimal form.

- | | | | |
|--------------|---------------|---------------|--------------|
| 1. 3 cm 8 mm | 2. 3 cm 3 mm | 3. 4 cm 8 mm | 4. 5 cm 9 mm |
| 5. 7 cm 3 mm | 6. 4 cm 5 mm | 7. 10 cm 5 mm | 8. 5 cm 0 mm |
| 9. 9 cm 2 mm | 10. 7 cm 6 mm | | |

Practice exercise 2

Measure these lines. Write your answers in the decimal form.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

Centimetres

$$100 \text{ cm} = 1 \text{ m.}$$

$$1 \text{ cm} = \frac{1}{100} \text{ m or } 0,01 \text{ m}$$

Example

$$1. 48 \text{ cm} = \frac{4}{10} \text{ m} + \frac{8}{100} \text{ m} = \frac{48}{100} \text{ m or } 0,48 \text{ m}$$

$$2. 4\text{m } 35 \text{ cm} = 4,35 \text{ m}$$

$$3. 28\text{m } 3 \text{ cm} = 28,03 \text{ m}$$

Practice exercise 3

Write these in metres and centimetres in the decimal form.

- | | | | | |
|--------------|--------------|--------------|---------------|--------------|
| 1. 5 m 72 cm | 2. 4 m 8 cm | 3. 9 m 42 cm | 4. 13 m 99 cm | 5. 4 m 5 cm |
| 6. 9 m 26 cm | 7. 6 m 31 cm | 8. 7 m 40 cm | 9. 13 m 17 cm | 10. 5 m 0 cm |

Rounding off

Examples

1. Round off 4.5cm to the nearest cm.
2. Round off 7.08m to the nearest metre.

Solutions

1. 4.5cm is 5cm to nearest cm.
2. 7.08m is 7m to the nearest metre.

Practice exercise 4

Round-off these numbers.

To the nearest cm

1. 6.2 cm
2. 3.9 cm
3. 4.5 cm
4. 0.7 cm
5. 7.4 cm

To the nearest metre

6. 4.31m
7. 8.62m
8. 2.50m
9. 0.61m
10. 8.99m

To the nearest 10m

11. 28m
12. 31m
13. 76.27m
14. 81.97m
15. 96.41m

To the nearest 100m

16. 194m
17. 321m
18. 97.50
19. 442.20m
20. 875.75m.

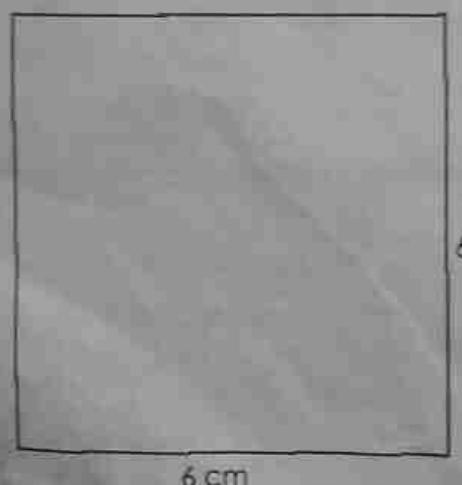
Perimeter

Perimeter

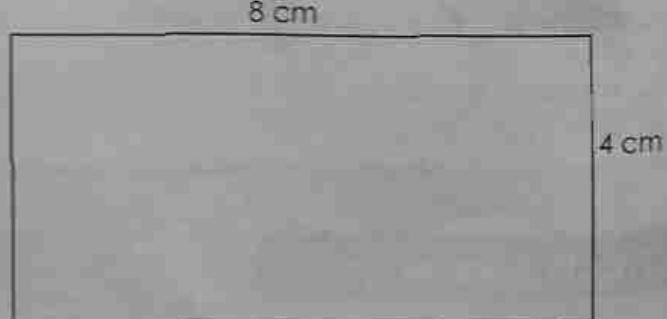
Examples

Find the perimeter of the shapes below.

1.



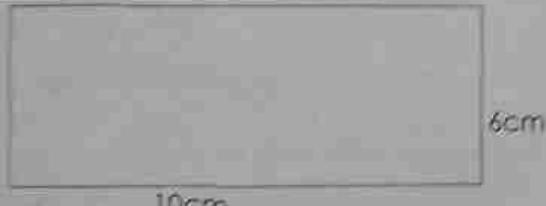
2.



Solutions

1. The perimeter of a square
= Side + Side + Side + Side
= Side \times 4
= 6cm \times 4
= 24cm

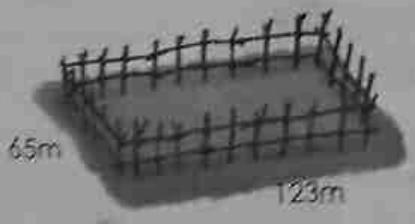
2. The perimeter of a rectangle
= Side + Side + Side + Side
= 8cm + 4cm + 8cm + 4cm
= (8cm + 4cm) \times 2
= 12cm \times 2cm
= 24cm

Practice exercise 5

1. The perimeter of this rectangle is _____.



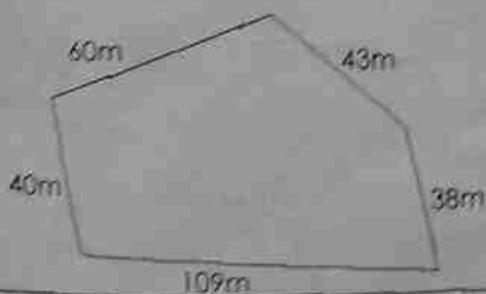
2. One side of a rectangle garden is 37m. The width is 12m. What is the perimeter of the garden in metres?



3. Find the perimeter of this kiosk.



4. Tendai made a home for his chickens. He left a gap of 1 metre for a gate. What length of wire was used?



5. A farmer fenced a plot of land. He left a 2 metre gap for a gate. What was the length of fencing used in metres?

Practice exercise 6

Do the following.

- Benny planted a bean seed. In one week it grew from 2.7 cm to 7.2 cm. How many cm did it grow in that week?
- John walked 450 m to Tendai's house, then 372 m to Samson's house. From Samson's house to his own house he walked 822 m. How far did John walk?
- Mary drew a square. One side was 6.50 cm. What was the perimeter of the square?
- The perimeter of a square is 1 m. What is the length of each side?
- A piece of string 9.76 m was cut into 6 equal pieces. What was the length of each piece?
- A blue material cost 60c a metre. Mother bought $2\frac{1}{2}$ m for a dress. How much did it cost?
- A pole is 15 metres. $\frac{1}{5}$ of it is put below the ground. How high is the pole above the ground?
- A father is 35.5 cm taller than his son. His son is 10.5 cm shorter than his mother. If the father is 1.72 m tall. How tall is mother?
- Two boys run a 200m race. One falls after he has run 170 m. The second boy was 16 m behind when he fell. How far has the second boy to run?
- Benny's garden is rectangular. It is 14.50m long. Its width is 4.50m less than its length. What is the perimeter of his garden?

End of unit assessment

Multiple choice

Fill in the missing numbers.

- 2.4m 2.6m 2.8m 3.2 m
A. 2.0m B. 3.m C. 4.0m D. 5.0m
- 6.9cm 6.4cm 5.9cm 4.9cn
A. 3.4cm B. 4.4cm C. 5.4cm D. 6.4cm

Fill in the missing signs: <, > or =.

- $3.5m + 0.5m$ $4.1m$
A. > B. < C. = D. -
- $7.0 \text{ cm} - 3.5 \text{ cm}$ $1.6 \text{ cm} \times 2$
A. > B. + C. < D. =

5. Share 15.61m among 7 people.
A. 22.3m B. 20.23 m C. 3.22m D. 2.23m
6. Find the product of 5.46 m by 10.
A. 5.36 m B. 5.56 C. 54.60 m D. 5460 m
7. Divide 34.7 cm by 10.
A. 3470 cm B. 347.0 cm C. 35.7 cm D. 33.7 cm
8. What is the sum of 5.35 m and 7.85 m?
A. 13.2 m B. 12.2 m C. 12.02 m D. 7.85 m
9. What is the difference between 18.25 cm and 7.75 cm?
A. 10.25 cm B. 10.5 cm C. 25.25 cm D. 25.5 cm
10. The product of 8.7 m and 9 is
A. 78.9 m B. 78.3 m C. 8.3 m D. 7.8 m [10 marks]

Structured questions

1. 27.97 m minus 12.99 m.
2. Multiply 4.25 m by 8.
3. Add 5.83 cm and 7.89 cm.
4. Find the total of 0.995 m; 2.405 m and 13.909 m.
5. Share 27.9 cm among 9.
6. What is the difference between 19.76 m and 11.99 m?
7. Ratidzo drew a square. One side was 8.25 cm. What is the perimeter of the square?
8. A piece of string is 81.9 m was cut into 3 equal pieces. What was the length of each piece?
9. Two boys run a 400 m race. One falls after he has run 295 m. The second boy was 15 m behind when he fell. How far has the second boy to run?
10. Lawrence's garden is rectangular. It is 15.50 m long. Its width is 4.50 m less than its length. What is the perimeter of his garden?

Unit 32

Area

Objective

You should be able to:

1. find area of rectangle, square and right angled triangle.

Flashback

In this unit you are expected to find area.

Key words



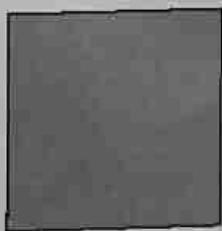
surface

area

palm

Area

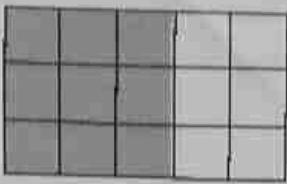
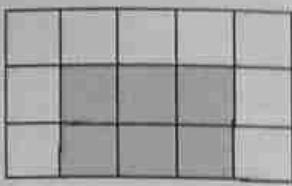
Look at the shapes below.



Which of the two occupies more space?

Area is the space taken up by a shape on a surface.

Look at the pictures below.



We used a grid to show how much space is taken by the blue shape and the purple shape.

Area is measured in square centimetres or square metres.

1 grid = 1cm²

Area of the blue shape is 6cm².

Area of the purple shape is 9cm².

Practice exercise 1

Find area of the following shapes.

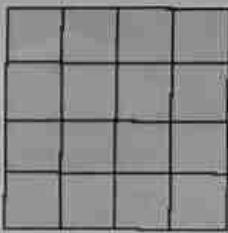
1.



2.



3.



4.



5.



6.



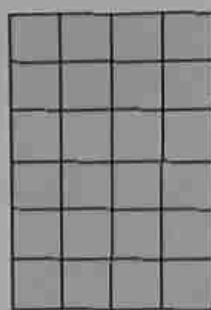
7.



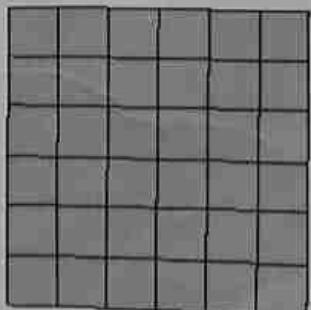
8.



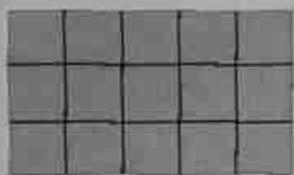
9.



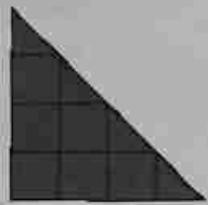
10.



Area of a triangle



Area of the rectangle = 15cm²



Count the number of full squares. Add the $\frac{1}{2}$ squares.

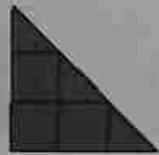
We have 6 full squares and 4 half squares

$$\text{Area} = 6 + 2 = 8\text{cm}^2$$

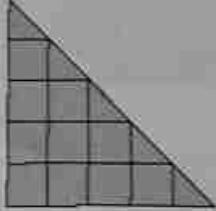
Practice exercise 2

Find the area of the following triangles.

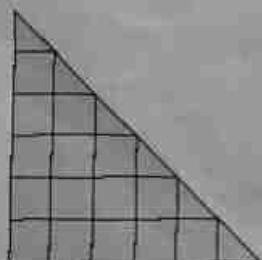
1.



2.



3.



4.



Activity 1

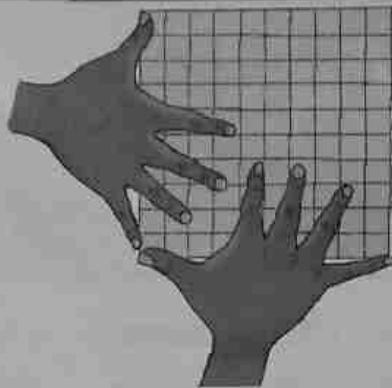
In length we used span and pace to measure objects.
Look at the picture below.

This is a picture of Chipo's square span.

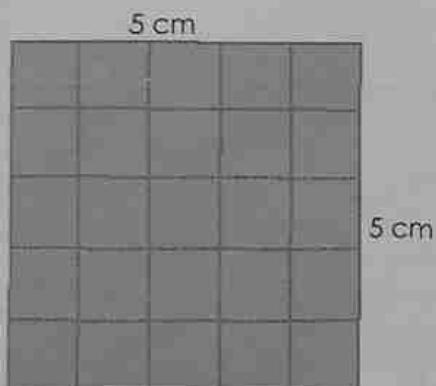
It measures 100 square units.

She uses it to measure surfaces.

1. In groups of two make your own square span.
2. Also make your square pace.
3. Cut it out from a cardboard box.
4. Use your square span and your square pace to measure the area of the following:
a) table top b) seat of a chair c) a calendar



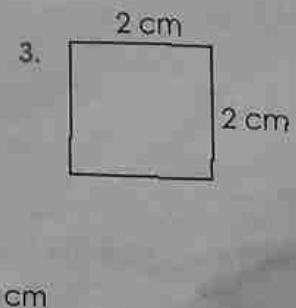
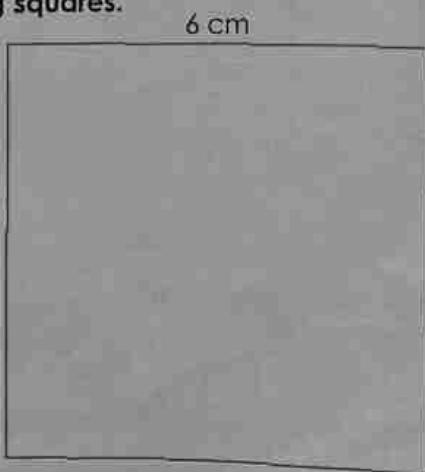
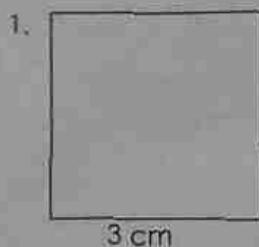
Area of a square

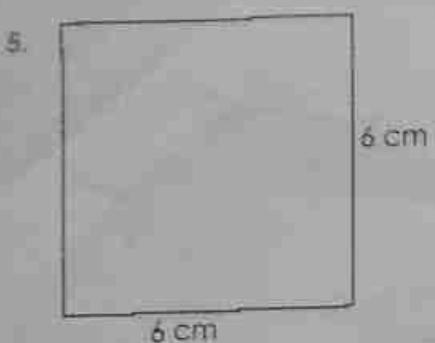
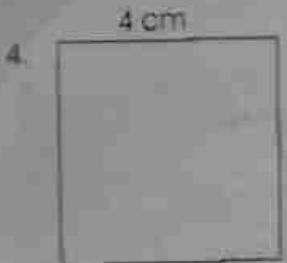


$$\begin{aligned}\text{Area of a square} &= \text{Side} \times \text{Side} \\ &= 5\text{cm} \times 5\text{cm} \\ &= 25\text{cm}^2\end{aligned}$$

Practice exercise 3

Find the area of the following squares.

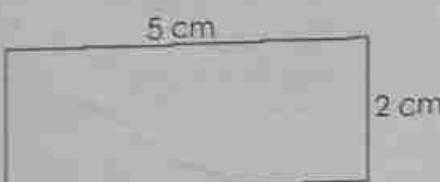




Area of a rectangle

Look at rectangle below.

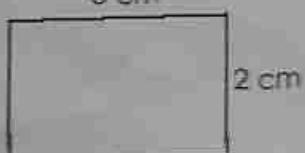
$$\begin{aligned}\text{Area of a square} &= \text{Length} \times \text{Width} \\ &= 5\text{cm} \times 2\text{cm} \\ &= 10\text{cm}^2\end{aligned}$$



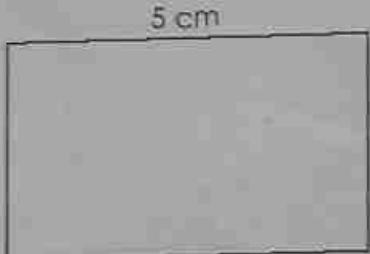
Practice exercise 4

Find the area of the following rectangles.

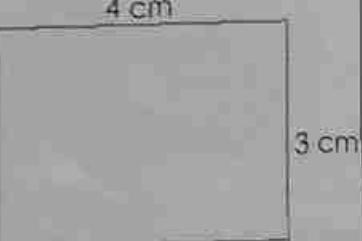
1.



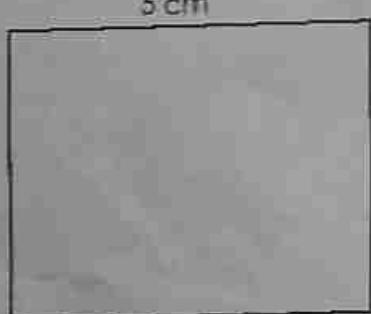
2.



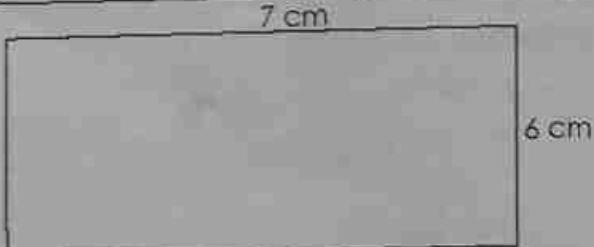
3.



4.



5.



Draw and complete this table.

6.

Area of rectangles in cm^2

Length in cm	6	7	8	9	10	11	12	15	20	25
Width in cm	2	4	6	8	3	5	7	2	5	4
Area in cm^2	12									

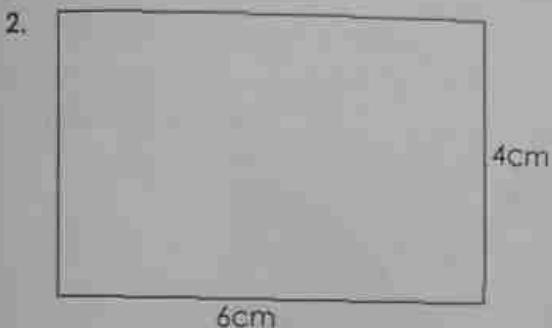
Activity 2

1. In groups of four find out why area is important in real life.
2. Bring your findings to the class.
3. Discuss with your friends.

End of unit assessment

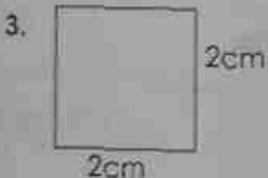
Multiple choice

1. What is the area of a rectangle 8 cm long and 3 cm wide?
A. 11cm B. 24cm² C. 16cm² D. 24cm



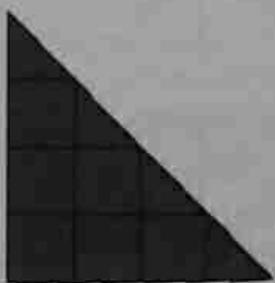
What is the area of the rectangle?

- A. 10cm²
- B. 36cm²
- C. 24cm²
- D. 32cm²



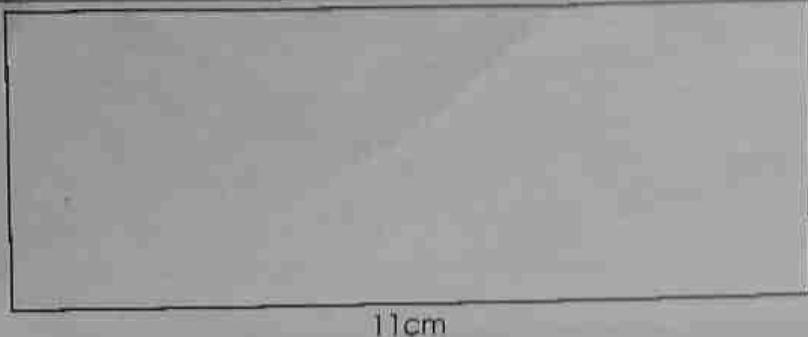
- A. 2cm²
- B. 4cm²
- C. 6cm²
- D. 8cm²

4. Find the area.



- A. 4cm²
- B. 12cm²
- C. 6cm²
- D. 8cm²

5.



What is the area of the shape above?

- A. 44cm^2 B. 84 cm^2 C. 42 cm^2 D. 34 cm^2

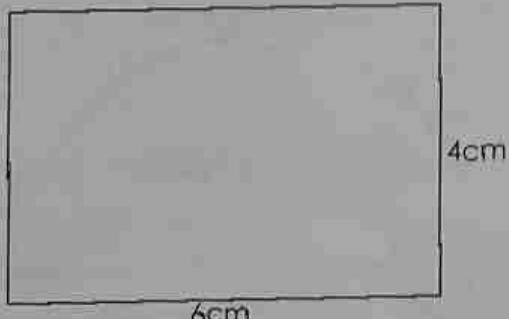
6. What is the area of a rectangle with 8 cm long and 5 cm wide?

- A. 13 cm^2 B. 26 cm^2 C. 40 cm^2 D. 80 cm^2

7. Find the area of a square with a side measuring 7 cm.

- A. 7 cm^2 B. 14 cm^2 C. 28 cm^2 D. 49 cm^2

8.



Find the area of the above shape.

- A. 6 cm^2 B. 10 cm^2 C. 20 cm^2 D. 24 cm^2

9. A rectangle is 8 cm long and 6 cm wide. What is its area?

- A. 2 cm^2 B. 14 cm^2 C. 28 cm^2 D. 48 cm^2

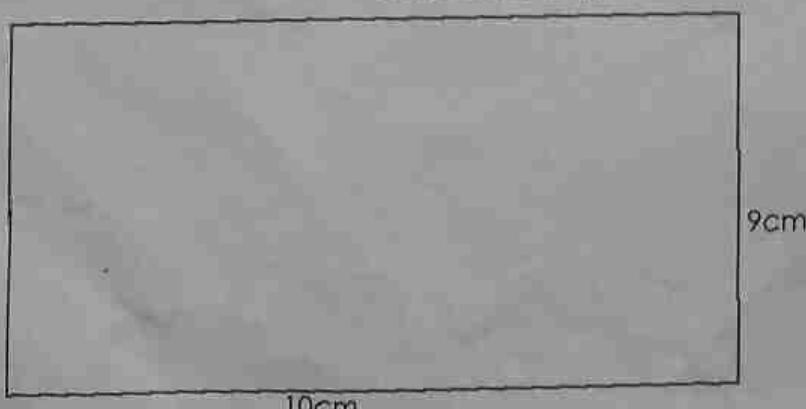
10. The area of a square is 16 cm^2 . What is the length of one side of the square?

- A. 2 cm B. 4 cm C. 6 cm D. 8 cm

[10 marks]

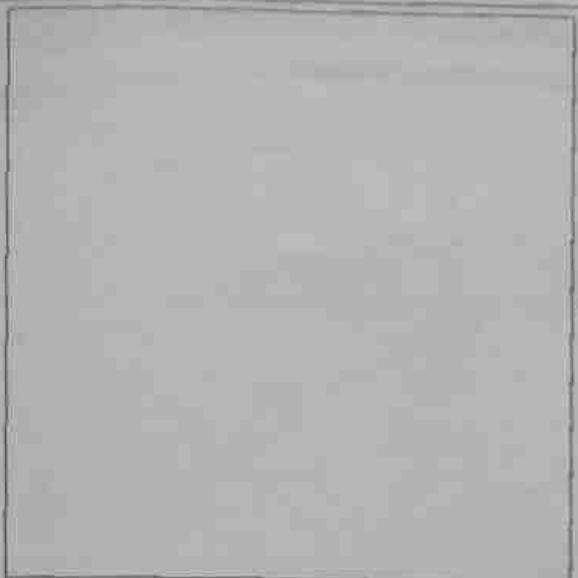
Structured questions

1.



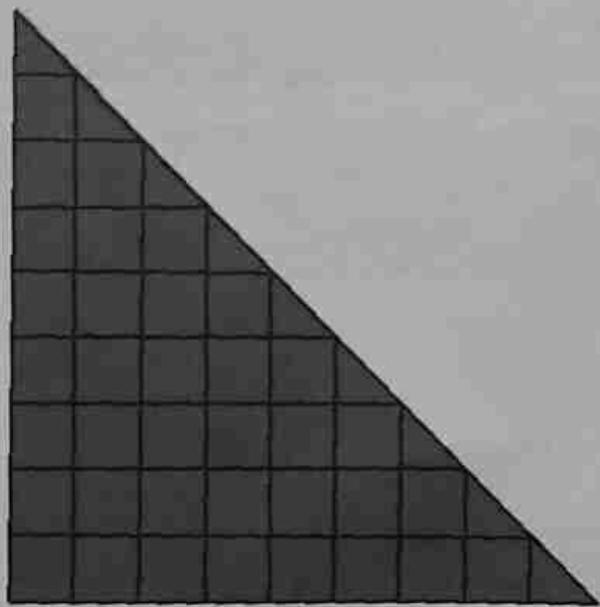
Find the area of the above rectangle.

2.



Find the area of the square.

3.



Find the area of the triangle.

4. A square has an area of 49cm^2 . What is the length of one side?
5. A triangle with a height of 7cm and a base of 22cm has an area of _____.
6. A rectangle has an area of 96cm^2 . If its width is 8cm, what is the length?
7. Find the area of the triangle whose base is 10cm and the height is 10 cm.
8. A floor measures 16m by 10m. What is its area?
9. The perimeter of a square is 32cm. What is its area?
10. A vegetable bed measures 6m by 4m. What is its area?

Unit 33

Graphs

Objectives

You should be able to:

1. read information from tables
2. collect and record data on tables
3. read and interpret information from graphs
4. solve problems using graphs and tables.

Flashback

In this unit you are expected to read and interpret graphs.



Key words

scale

vertical

horizontal

Tables

Example

Mr Nyama is a farmer in the Gadjema area. His daughter Miriam counted the different animals found at his farm. Here is the table she made up.

Animal type	Cattle	Chickens	Goats	Dogs	Sheep
Number of animals	40	64	25	6	22

Practice exercise 1

- Study the table in the example and answer the following questions.
 - How many cattle are at the farm?
 - How many goats are at the farm?
 - How many chickens are at the farm?
 - Which animals are the greatest in number?
 - How many more cattle are there than goats?
- Study the table below of Zimbabwean medals at the Olympics and answer the following questions.

Sport	Gold	Silver	Bronze	Total
Swimming	2	4	1	7
Field hockey	1	0	0	1
Total	3	4	1	8

- How many medals has Zimbabwe won at the Olympics altogether?
- Which sport has won the most Olympics medals?
- How many gold medals has Zimbabwe won so far?
- How many different sports are represented in this table?
- Which sport has represented the least medals?

- Study the table of continents below and answer the questions that follow.

Continent	Number of Countries
Africa	54
Antarctica	0
Asia	47
Australia plus Oceania	14
Europe	43
North America	23
South America	12

- How many continents are there?
- Which continent has the greatest number of countries?
- Which continent has the smallest number of countries?
- In which continent is Zimbabwe found?
- What is the total number of countries are in North and South America?

Activity 1

In groups of 5 go to the school garden.

Record in a table, how many beds of each plant is grown at the garden.

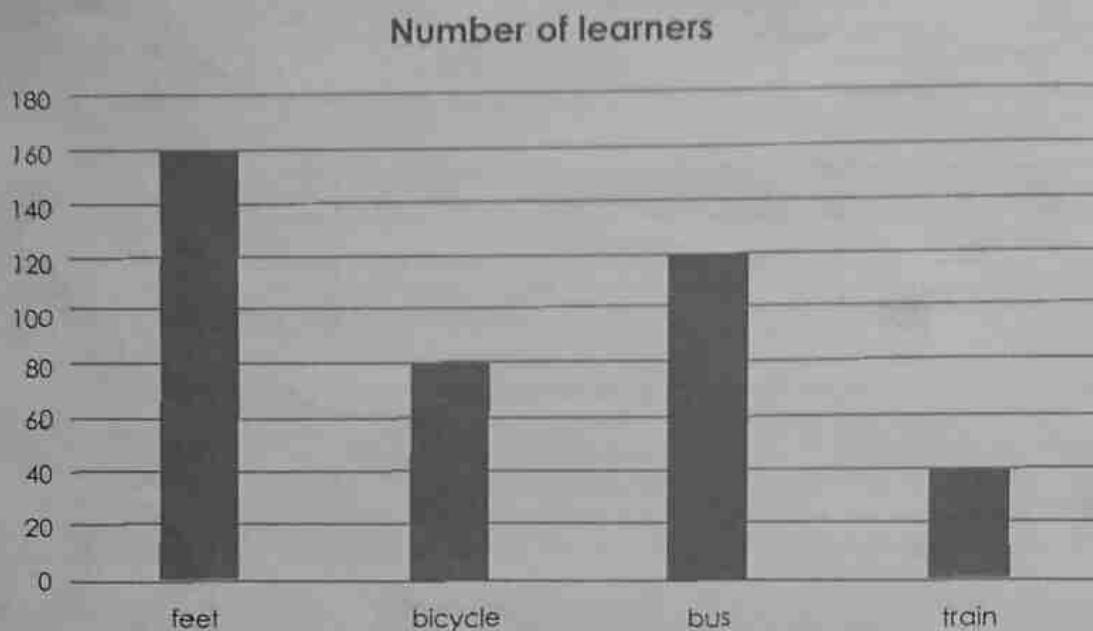
Example of table:

Plant type	Coco	Carrots	Tomatoes
Number of beds	16	4	12

Compare your findings with the other group.

Bar graph

Learners at Lungile Primary school use different modes of transport to get to school. Look at the bar graph below and answer the questions that follow.



Practice exercise 2

- Study the bar graph in the example and answer the following questions.
 - How many learners travelled by bus?
 - How many learners came on foot?
 - Which is the most used mode of transport?
 - Which is the least used mode of transport?
 - How many learners travelled by train?
- Study the table below of learners in a class who keep pets at home.

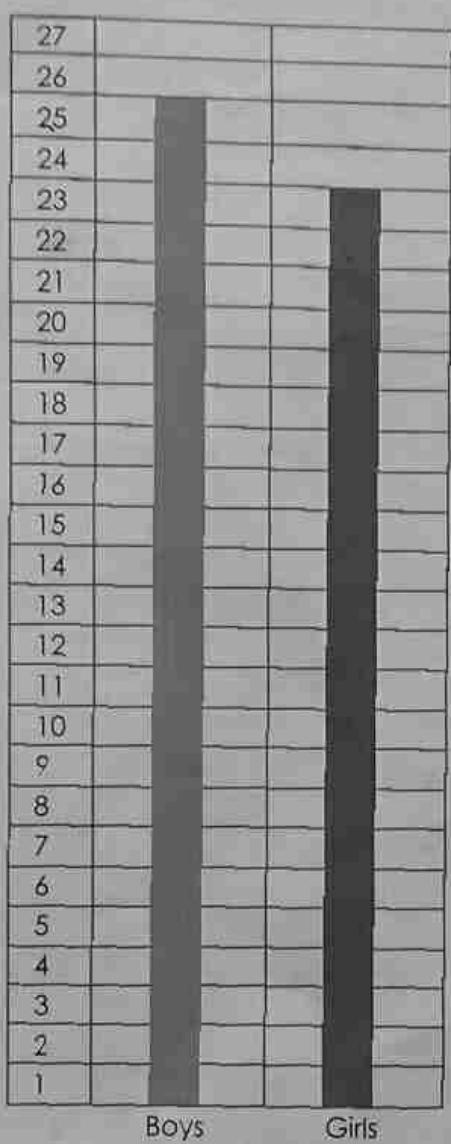
Types of pets	Dog	Cat	Rabbits	No pets
Number of learners	15	8	3	9

Draw a bar graph to show information on the table above.

- How many learners keep dogs at home?
- Which pet is kept most?
- Which pet is least kept?
- How many learners do not have pets at home?

Column graph

A column graph is very like a bar graph. The column is narrower than a bar. This one shows the number of girls and boys in Grade 4 class.

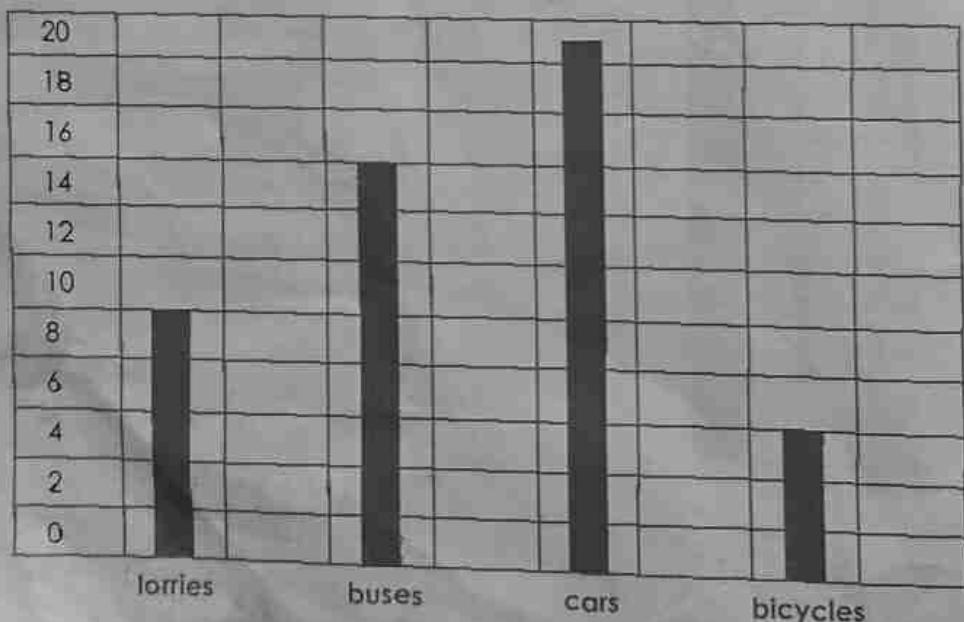


Practice exercise 3

1. Does a quick look tell you if there are more or less boys than girls?
2. The vertical scale is the set of numbers up the left hand side of the graph. Complete this sentence: The vertical scale goes from 0 to _____.
3. One square on the vertical scale stands for how many children?
4. How many children are there in the class altogether?
5. How many boys are there?
6. How many girls are there?
7. How many more boys are there than girls?
8. There is a room for 46 children in the class. How many more children could there be in a class?
9. Grade 5 has six more girls than Grade 4. How many girls has Grade 5?
10. There are 46 children in Grade 5. How many boys are there?

Practice exercise 4

This column graph shows the number of lorries, buses, cars and bicycles which pass a town school between 9 a.m. and 10 a.m. Each division on the vertical scale stands for two vehicles.



1. How many vehicles passed the school altogether?
2. How many more cars were there than lorries?
3. How many more cars were there than bicycles?
4. How many more buses were there than lorries?
5. Where there more lorries and bicycles or buses and cars?
6. Which vehicle do you think carried most people altogether?

Pie chart

Here is a pie chart showing the number of days it rained in each week of January. Kudakwashe recorded them on a table below then drew a pie chart.

Week	1	2	3	4
Number of days	2	4	4	6

DAYS RAIN FELL IN JANUARY



Practice exercise 5

Study the table and pie chart in the example and answer the following questions.

1. How many days rained in January?
2. Which week received the most rainfall?
3. Week _____ and _____ received same amount of rainfall.
4. Week _____ received the least rainfall.
5. The pie chart shows rainfall for which month?

Study the pie chart of visitors at heritage sites in Zimbabwe and answer the questions that follow.

Visitors in July



6. Which heritage site receive the least visitors?
7. Which heritage site receive the most visitors?
8. Which heritage site in Zimbabwe would you like to visit and why?

End of unit assessment

Multiple choice

Answer all the questions.

The table below shows the number of people who went for HIV testing at a clinic in a week.

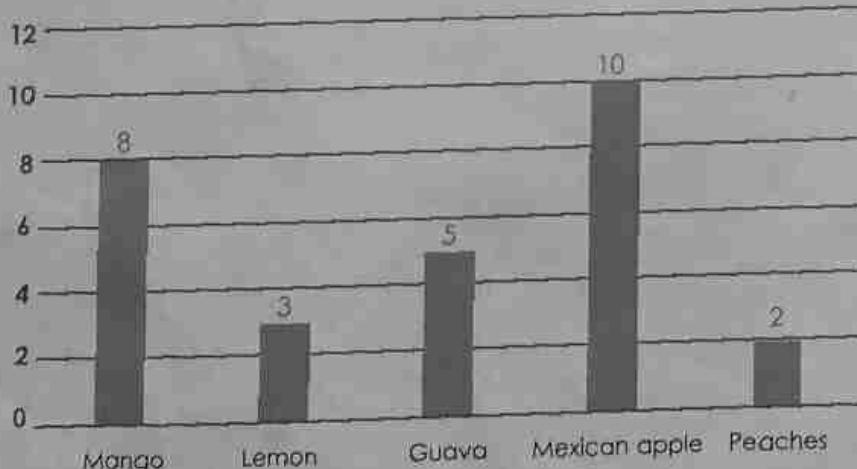
Days of the week	Monday	Tuesday	Wednesday	Thursday	Friday
Number people tested	18	10	10	29	34

Study it and answer questions 1 to 5.

- Which day did most people get tested?
A. Tuesday B. Thursday C. Friday D. Monday
- Which days had the same number of people tested?
A. Monday and Tuesday B. Thursday and Friday
C. Wednesday and Thursday D. Tuesday and Wednesday
- Which days had the least people tested?
A. Tuesday and Wednesday B. Monday and Tuesday
C. Thursday and Friday D. Wednesday and Thursday
- How many more people were tested on Friday than Monday?
A. 8 B. 0 C. 16 D. 10
- What is the total number of people who got tested from Monday to Friday?
A. 30 B. 101 C. 75 D. 55

The bar graph show the different kinds of trees grown in Mrs Mutepfa's garden. Study it and answer questions 6 – 10.

Number of trees



- Which fruit tree has the least number of trees?
A. Mango B. Guava C. Lemon D. Peaches
- What is number of Mango trees and Guava trees altogether?
A. 11 B. 13 C. 18 D. 10

8. Which fruit tree type has the most number of trees?
A. Mexican apple B. Guava C. Mango D. Lemon
9. The total number of trees in the orchard is _____.
A. 30 B. 45 C. 15 D. 28
10. How many guava trees do you need to plant so that it can have the same number as the Mexican apple trees?
A. 3 B. 4 C. 2 D. 5 [10 marks]

Structured questions

The Ndlovu family made allocations for his monthly budget. Mr Ndlovu made a pie chart on his expenses for food, rent, clothing, entertainment and miscellaneous.

Monthly budget



1. What is the least allocation per month? [1]
2. What is the biggest allocation per month? [1]
3. What is the next biggest allocation per month? [1]
4. If this was your monthly budget what will you make your biggest allocation. Explain why? [1]
5. Why do you think Mr Ndlovu chose to present his budget in a pie chart? [1]

Unit 34

Rate

Objective

You should be able to:

1. relate two measures.

Flashback

What is a measure? State the measures you know.



Key word

rate

Rate

Rate it is comparison of two units in relation to each other.

Activity 1

In groups of 4, Run 100m race and determine time taken by each learner to complete the race.

Rate

Example

Lisa collected 25 litres of water from the borehole in one trip. What is the rate?

Solution

25 litres per trip.

Practice exercise 1

State the rate for the following phrases.

1. 9 books for \$11.
2. 825mm in one year.
3. 120km on 30 litres of fuel.
4. \$5 for 4 cans of juice.
5. 9 mistakes in 3 test papers.

Rate

Unit rate

Example

Rate is known to determine cost of things.

- If Themba bought 5 packets of chips from 75c. What is the cost of 1 packet?

Solution

$$75c \div 5 = 15c$$

Each packet of chips is 15 cents.

Practice exercise 2

Find out the cost of the following.

1. If cost \$11.00 to buy 2 packets of biscuits. What is the cost of one packet?
2. If cost 20 cents to buy two packets of maputi. What is the cost of one packet?
3. If cost \$8 to buy 2kg beef. How much does 1kg of beef cost?
4. If cost \$2 to buy 2 packets of milk. How much is one packet?
5. If cost \$45 to buy 5 shirts. What is the cost of one shirt?

Practice exercise 3

Copy and complete the following table.

	Rate	Unit rate
1. 128 girls in 8 groups.	128 per 8 groups.	16 girls per group.
2. 125 pages per 7 hours.		
3. 180 points per 7 games.		
4. 150 calls per 6 hours.		
5. 420 words per 6 minutes.		
6. \$140 for 5 hours of work.		

Ellen's reading rate

The table below shows Ellen's reading rate.

Number of pages	2	4	6	8	10	12
Number of minutes	1	2	3	4	5	6

Ellen reads 2 pages in 1 minute. This can be written as 2 pages per minute (2p/min).

Practice exercise 4

Study the table and answer the questions that follow.

1. Ellen reads 4 pages in ____ minutes.
2. She reads 8 pages in ____ minutes.
3. Ellen reads 10 pages in ____ minutes.
4. How many pages does she read in 6 minutes?
5. How many pages does Ellen read in 3 minutes?

End of unit assessment

Multiple choice

Vegetable/ Fruit	Rate
Rape	\$1 per kg
Watermelon	\$2 per kg
Matamba	50c per kg
Tsubvu	20c per kg

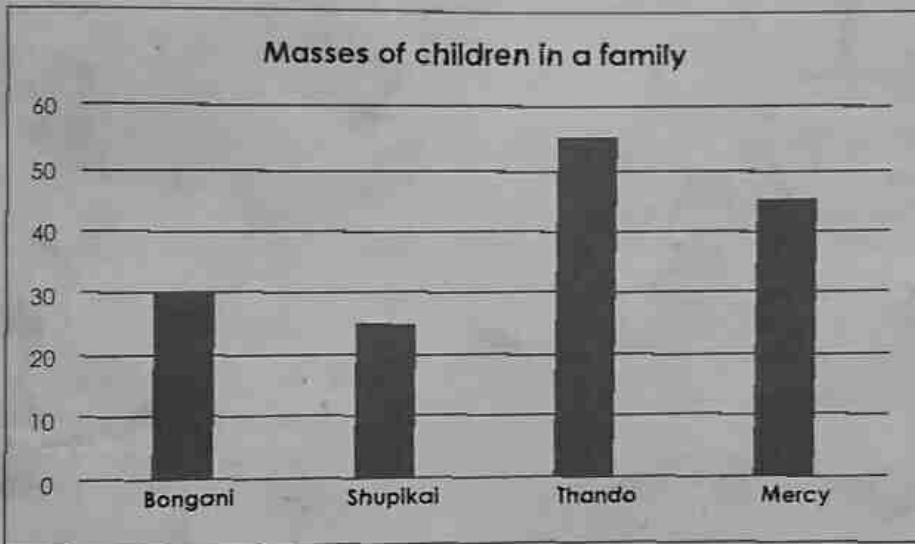
Look at the table of vegetables and fruits on sale.

1. Vegetables (rape) cost ____ per kg.
A. 20c B. 50c C. \$1 D. \$2
2. Watermelon cost ____ per kg.
A. \$1 B. 50c C. 20c D. \$2
3. Matamba cost ____ per kg.
A. 20c B. 50c C. \$1 D. \$2
4. Tsubvu cost ____ per kg.
A. 50c B. \$1 C. 20c D. \$2
5. Which fruit is the cheapest?
A. Rape B. watermelon C. Matamba D. Tsubvu

6. Which fruit is most expensive?
 A. Tsubvu B. Rape C. Watermelon D. Matamba
7. What is the cost of 10kg matamba?
 A. \$1 B. \$5 C. \$2 D. 50c
8. A car cycled 30km in 2 hours. What was the distance cycled per hour?
 A. 30km B. 15km C. 20km D. 10km
9. A typist takes 30 seconds to type 50 words. How many words can she type in 60 seconds?
 A. 50 B. 30 C. 60 D. 100
10. Tendai spends 4 hours in a day practicing playing the guitar. What is his rate of practicing?
 A. 4 hours per day B. 4 hours per week
 C. 4 hours per month D. 2 hours per day

[10 marks]

Structured questions

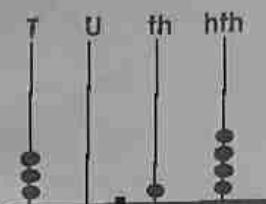


1. The names of the children on the above graph in order of their masses starting with the lightest. [4]
2. Who is the heaviest member of the family? [1]
3. Thando fell ill and lost 11 kg. What is his mass now? [2]
4. Shupikai will need to gain how many kilograms to reach Bongani's mass? [2]
5. What is the mass for Mercy? [1]

Unit 35

Paper 1: Multiple choice**Answer all questions.**

1. What number does this picture show?



- A. 324 B. 32,04 C. 30,24 D. 30,04
2. $9\ 450 = 9\ 000 + \square + 50$
 A. 4 000 B. 400 C. 40 D. 4
3. Put the correct sign $120 \square 100 + 35$.
 A. < B. > C. = D. -
4. 47 in roman numerals
 A. XXXXVII B. XLVII C. LXVII D. VILX
5. $\frac{2}{4} + \frac{1}{4} = \square$
 A. $\frac{1}{2}$ B. $\frac{3}{4}$ C. $\frac{4}{4}$ D. 1
6. $\frac{2}{10} = \frac{\square}{5}$
 A. 2 B. 1 C. 3 D. 10
7. 7,45 to the nearest whole number.
 A. 7,40 B. 8 C. 7 D. 6
8. The difference between 46 and 37 is _____.
 A. 83 B. 46 C. 37 D. 9
9. Mrs Khumalo bought 400 goats, 250 chickens and 22 sheep. How many animals does she have altogether?
 A. 772 B. 780 C. 672 D. 708
10. $3\ 486 + 1\ 209$
 A. 4 685 B. 4 568 C. 4 575 D. 4 695
11. What is the total value of 10 ten cents coin and 2 fifty cent coin?
 A. \$3,00 B. 12 cents C. \$2,00 D. 50 cents
12. What is $\frac{1}{10}$ as a percentage?
 A. 1% B. 20% C. 10% D. 2%

13. What is $\frac{13}{4}$ as a mixed number?

A. $3\frac{1}{4}$

B. $2\frac{1}{4}$

C. $1\frac{3}{4}$

D. $4\frac{1}{3}$

14. $\frac{1}{4}$ of an hour is _____.

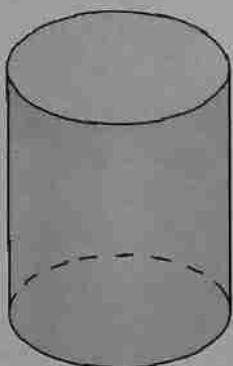
A. 10 minutes

B. 12 minutes

C. 60 minutes

D. 15 minutes

15. This shape is a _____.



A. cylinder

B. pot

C. jar

D. circle

16. $8 \times 6 =$

A. 48

B. 56

C. 42

D. 24

17. What is the shape of the earth?

A. rectangular prism B. cylinder

C. sphere

D. cube

18. Which of the following is a multiple of 6?

A. 21

B. 15

C. 56

D. 36

19. 32,89 in words is _____.

A. Thirty two comma eighty nine

B. Three thousand two hundred and eighty nine

C. Three hundred and two hundred and eighty nine

D. Thirty two comma eight nine.

20. What is the difference between 300 and 97?

A. 200

B. 201

C. 202

D. 203

21. Mass is measured in _____.

A. Kilograms

B. Metres

C. Kilometres

D. Centimetres

22. How many days are there in a year?

A. 312

B. 365

C. 356

D. 340

23. What is the total of 196 and 280?

A. 376

B. 476

C. 576

D. 276

24. 1kg = _____ grams.

A. 250

B. 2 500

C. 1 000

D. 1050

25. Which one is a factor of 16?

A. 5

B. 3

C. 10

D. 8

26. 210

$\times 20$

A. 1200

B. 4200

C. 220

D. 2120

27. $\frac{3}{4}$ kg = \square grammes

A. 500

B. 700

C. 550

D. 750

28. 3000

$- 1972$

A. 1028

B. 2028

C. 1138

D. 1038

29. $1\text{cm} = \square\text{mm}$

A. 100

B. 10

C. 20

D. 1000

30. The piece of cloth 10.75cm long was cut. 7m was taken away. How many metres were left?

A. 3.75

B. 2.75

C. 3.15

D. 2.15

31. Divide 78.5 by 5

A. 12.7

B. 20

C. 15.7

D. 15.5

32. How many minutes are there from $9:35\text{am}$ to $10:15\text{am}$?

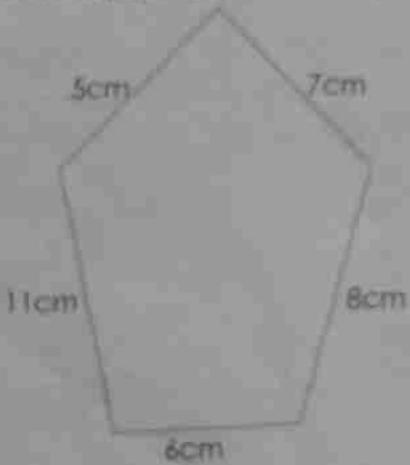
A. 50

B. 40

C. 20

D. 30

33. What is the perimeter of this shape?



A. 37cm

B. 31cm

C. 20cm

D. 13cm

34. What is the area of this shape below?



A. 13cm^2

B. 1cm^2

C. 42cm^2

D. 12cm^2

35. A rectangular prism has _____ corners.
 A. 5 B. 6 C. 7 D. 8
36. $50\text{mm} = \square \text{cm}$
 A. 10 B. 15 C. 2 D. 5
37. $1 \text{ litre} = \square \text{ ml}$
 A. 500 B. 1 000 C. 100 D. 1 500
38. $\begin{array}{r} 3486 \\ \times 2 \\ \hline \end{array}$
 A. 6 972 B. 6 862 C. 9262 D. 5 972
39. $162\text{cm} = \square \text{ m}$
 A. 16.2 B. 1.62 C. 162.0 D. 6.12
40. Chipo was facing East. She turns one right angle to the right. Which direction is she facing now?
 A. East B. West C. North D. South
41. $\frac{1}{4}$ to 5 can be written as _____.
 A. 5:15 B. 4:45 C. 5:45 D. 5:30
42. A month has _____ weeks.
 A. 2 B. 3 C. 4 D. 5
43. What is the product of 9 and 8.
 A. 64 B. 81 C. 56 D. 72
44. 15 children have 7 books each. How many books are there altogether?
 A. 75 B. 105 C. 112 D. 150
45. Share 120 oranges among 10 children. How many does each get?
 A. 2 B. 10 C. 12 D. 15

The table below shows the marks Kudzai, Kundai and Paidha got in Agriculture, English and Mathematics.

Subject	Kudzai	Kundai	Paida
Agriculture	20	25	50
English	?	45	70
Mathematics	60	40	20
Total	120	110	140

46. How many marks did Paidha get in Mathematics?
 A. 70 B. 60 C. 40 D. 20
47. In which subject did Kundai get the lowest marks?
 A. Mathematics B. Agriculture C. English D. Music
48. _____ If Kudzai's total marks are 120, what mark did she get in English?
 A. 20 B. 40 C. 60 D. 120
49. $\begin{array}{r} 1589 \\ + 4241 \\ \hline \end{array}$
 A. 5 830 B. 5 720 C. 5 730 D. 5 810
50. 23 sweets were shared among 4 children. How many sweets were left?
 A. 2 B. 5 C. 3 D. 4

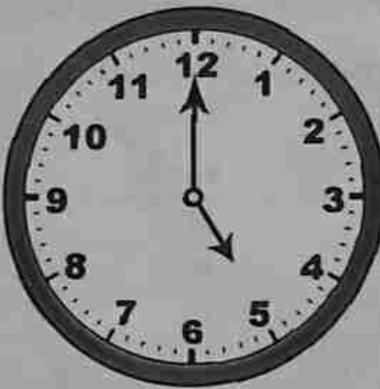
Paper 2

Instructions to candidates.

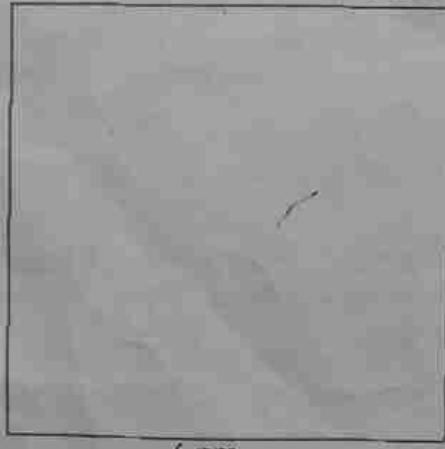
- a) Answer all questions on separate sheet.
- b) Answer all questions in section A and in Section B.

Section A: (25 Marks)

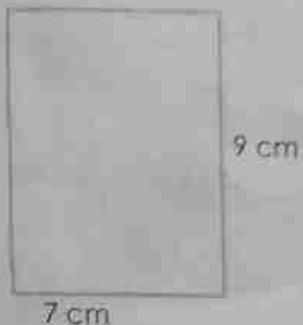
1. Write 4 207 in words. [1]
2. What is the value of the underlined digit in 627? [1]
3. Round off 534 to the nearest 100. [1]
4. 49 in roman numerals. [1]
5. Mrs Haruperi has 4 320 chickens, 450 goats, 265 sheep and 17 cows. How many animals does she have altogether? [2]
6. What is the product of 148 and 10? [1]
7. 308 take away 99. [1]
8. Share 81 books among 9 children. How much does each get? [1]
9. $432\text{cm} = \square\text{ m}$ [1]
10. Write $\frac{13}{4}$ as a mixed number. [2]



11. What time does this clock show? [1]
12. Ruvimbo started cooking at 7.30 a.m. She finished at 8.00 in the morning. How many minutes did she take? [2]
13. a) This shape is a _____. [1]



b) What is the area of this shape? [2]



14. a) Put the correct sign $\frac{1}{3} \square \frac{1}{5}$ [2]

b) $\frac{4}{10}$ in its lowest term. [2]

15. a) $1\frac{1}{4}$ kg = \square g [2]

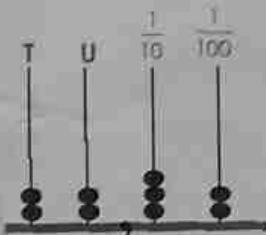
b) 8000g = \square kg [1]

Section B

Answer all questions in this section.

16. a) Round off 6.89 to the nearest tenth. [3]

b) What number does this picture show? [2]



17. a) A \$10 note = one \$5 note \$2 note and 1 coins [3]
b) Write \$18.92 in cents. [2]

18. a) Chipo started to walk to school at 7.00am. She took 45 minutes to reach school.
At what time did she reach school? [3]

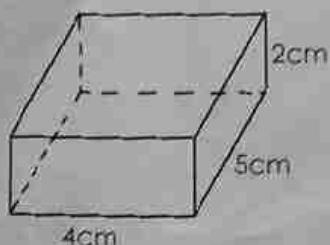
b) 10 to 8p.m. can be written as _____. [2]

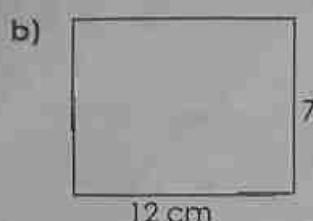
19. a) i. The length is \square cm. [3]

ii. The width is _____ cm.

[3]

iii. The height is _____ cm.





What is the perimeter of this shape?

[2]

20. a) Arrange these fractions in order start with the greatest.

$$\frac{1}{6} \quad \frac{1}{9} \quad \frac{1}{3}$$

b) $\frac{8}{\square} = \frac{4}{5}$

[3]

[2]

Third term: Project 3

My community

Everyone lives in a Community. Your community may be in a village, small town or a big town like Bulawayo or Harare.



1. Which kind of community do you live in?
2. Estimate how many people live in your community. Check with your teacher and find out how near you were to the correct number.
3. Choose any activity that goes on in your community, and find out as much mathematics about it as you can. Here is an idea. You must think of more.

Your Post Office

How many days of the week is your Post Office open? How many people work there? Ask about stamps. How many cents does a stamp cost to send a letter to

- i. another place in Zimbabwe
- ii. U.K.
- iii. Mozambique and so on.

Find out about posting. How many days does it take for a letter to get from Bulawayo to Harare, from Chipinge to Victoria falls?

Find out about what you can about telegrams.

How much they cost? Does the number of words in a telegram make a difference to the cost of sending the telegram?

Find out about sending parcels. Their mass and their cost.

Find out about Savings Accounts. How to save money, and how to withdraw money, and how to withdraw money from your account.

How mail is delivered and so on?

There are many more mathematical things to find out about the Post Office.

Here are some more "Project Topics" in your community.

- a) The Railway Station.
- b) The Store.
- c) The Garage.
- d) The Farmers' Co-operative.
- e) The Dip Tank.
- f) Your Clinic.

Ventures Primary Mathematics Grade

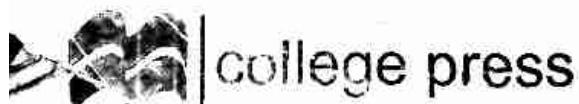


Ventures Primary Mathematics Grade 4 Learner's Book has been developed to support the content, aims and objectives contained in the New Primary Education Curriculum for Zimbabwe. It contains all the activities that the learners need to cover the Mathematics Syllabus for Grade 4.

The book:

- Has an extensive range of graded exercises that help learners to fully understand concepts.
- Inspires curiosity and inquisition in learners' minds through learner-centered approaches.
- Instills an aptitude of critical and logical thinking as well as self-expression.
- Encourages the acquisition, utilization and application of mathematical concepts and skills in study, work, leisure and everyday transactions through the use of technology.

The Learner's Book is part of the Junior Primary learner's Development Series completed with a comprehensive Facilitator's Resource Book.



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