OXFORD

SCHOOL Improvement

CAPS

PLANNER & TRACKER

Mathematics

Grade 7

- *Progress tracker*
- *Intervention strategies*
- *Worksheets and exam papers*
- *Assessment support*
- *Key vocabulary*

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Contents

The worksheets in this Teacher's Resource Book were compiled for use with the *Oxford Successful Mathematics* Grade 7 Learner's Book. The worksheets were adapted from the *Oxford Let's Practise Mathematics* Grade 7 Practice Book.

Term 4

Additional content 21

TERM 1

Progress tracker for Oxford Successful Mathematics Grade 7

Week	Contents and concepts (based on 2023/24 ATPs)	Worksheet name and page number	Learner's Book chapter and page reference	Planned time allocation	Date of completion	Teacher reflection
1–4	**Whole numbers** • Revision • Calculation techniques • Multiples and factors • Solving problems	**Worksheet** Ordering and comparing whole numbers (p. 8)	Chapter 1 LB: pp. 12 –16	13,5 hours		
4–5	**Formal assessment task**			2 hours		
5–7	**Common fractions** • Ordering, comparing and simplifying common fractions • Calculations with fractions • Calculation techniques • Percentages • Solving problems	**Worksheet** Multiplication of common fractions (p. 9)	Chapter 5 LB: pp. 133 – 137	9 hours		
7–9	**Decimal fractions** • Ordering and comparing decimal fractions • Calculations with decimal fractions • Calculation techniques • Solving problems • Equivalent forms	**Worksheet** Ordering and comparing (p. 10)	Chapter 6 LB: pp. 151 – 153	11,5 hours		
10	**Revision**			4,5 hours OR 3,5 hours		
11	**Assessment**			3,5 hours OR 4,5 hours		

TERM 2

Progress tracker for Oxford Successful Mathematics Grade 7

Week	Contents and concepts (based on 2023/24 ATPs)	Worksheet name and page number	Learner's Book chapter and page reference	Planned time allocation	Date of completion	Teacher reflection
1–2	**Exponents** • Comparing and representing numbers in exponential form • Calculations using numbers in exponential form	**Worksheet:** Calculation with numbers in exponential form (p. 11)	Chapter 2 LB: pp. 53 – 57	4,5 hours		
3–5	**Integers** • Counting, ordering and comparing integers • Calculations with integers • Properties of integers	**Worksheets:** Counting, ordering and comparing integers (p. 12)	Chapter 16 LB: pp. 300 – 304	9 hours		
6–7	**Numeric and geometric patterns** • Investigate and extend patterns	**Worksheet:** Investigate and extend patterns (p. 13)	Chapter 17 LB: pp. 321 – 322	9 hours		
8–9	**Functions and relationships** • Input and output values • Equivalent forms	**Worksheet:** Input and output values: Equivalent forms (p. 14)	Chapter 7 LB: pp. 169 – 181	9 hours		
10	**Revision**			4 hours		
11	**Assessment**			3 hours		

TERM 3

Progress tracker for Oxford Successful Mathematics Grade 7

Week	Contents and concepts (based on 2023/24 ATPs)	Worksheet name and page number	Learner's Book chapter and page reference	Planned time allocation	Date of completion	Teacher reflection
1–4	**Construction of geometric figures** • Measuring angles • Constructions **Geometry of straight lines** • Definitions	**Worksheet:** Measuring angles (p. 15)	Chapter 3 LB: pp. 63 – 68	13,5 hours		
5–6	**Geometry of 2D shapes** • Classifying 2D shapes • Similar and congruent 2D shapes • Solving problems	**Worksheet:** Triangles (p. 16)	Chapter 4 LB: pp. 87 – 96	9 hours		
7–8	**Transformation geometry** • Transformations • Enlargements and reductions	**Worksheet:** Translations (p. 17)	Chapter 14 LB: pp. 266 – 271	9 hours		
9	**Revision**			9 hours		
10–11	**Assessment**			3 hours		

TERM 4

Progress tracker for Oxford Successful Mathematics Grade 7

Week	Contents and concepts (based on 2023/24 ATPs)	Worksheet name and page number	Learner's Book chapter and page reference	Planned time allocation	Date of completion	Teacher reflection
1–2	**Area and perimeter of 2D shapes** • Area and perimeter • Calculations and solving problems	**Worksheet:** Regular and irregular polygons (p. 18)	Chapter 8 LB: pp. 185 – 195	8 hours		
3–4	**Surface area and volume of 3D objects** • Surface area and volume • Calculations and solving problems	**Worksheet:** Cubes and rectangular prisms (p. 19)	Chapter 9 LB: pp. 201 – 203	9 hours		
7–8	**Data handling** • Organise and summarise data • Represent data • Interpret data • Analyse data • Report data	**Worksheet:** Organise and summarise data (p. 20)	Chapter 19 LB: pp. 348 – 354	9 hours		
9	**Revision**			9 hours		
10–11	**Assessment**			8 hours		

Ordering and comparing whole numbers

Learner's Book pages 12–16

1. Write the following numbers in ascending order.

a) 450 541; 410 450; 451 541; 450 451

b) 370 504; 370 050; 370 250; 370 125

c) 99 901; 99 910; 99 909; 99 990; 89 999

2. Write the following numbers in descending order.

a) 370 504; 370 050; 370 250; 370 125

b) 99 901; 99 910; 99 909; 99 990; 89 999

c) 1 011 001; 1 011 100; 101 111; 101 101

3. Fill in <, > or = to make the following number sentences true.

a) 2 100 ___ 2 001

b) 1 010 + 200 ___ 1 000 + 200 + 10

c) 101 110 ___ 101 010

d) 9 999 + 1 ___ 10 000

e) 1 000 + 300 + 40 ___ 400 + 40 + 1 000

f) 370 101 100 ___ 370 101 101

4. Insert a whole number which is halfway between the two given whole numbers.

a) 59 998 and 459 994

b) 59 550 and 59 570

c) 1 011 001 and 1 011 003

d) 33 333 and 77 777

5. Which whole number lies three-quarters of the way between the following numbers?

a) 987 320 250 and 987 320 450

b) 250 700 and 251 100

c) 251 100 and 251 500

d) 250 900 and 251 300

6. Which whole number lies one-quarter of the way between the following numbers?

a) 987 320 250 and 987 320 450

b) 250 700 and 251 100

c) 251 100 and 251 500

d) 250 900 and 251 300

7. Write the following numbers in words.

a) 543 765 200

b) 543 754 201

c) 980 001 000

d) 543 010 010

Multiplication of common fractions

Learner's Book pages 133–137

1. Calculate.

a) $\frac{2}{3} \times \frac{1}{3}$ **b)** $\frac{3}{5} \times \frac{1}{5}$ **c)** $\frac{4}{5} \times \frac{5}{10}$ **d)** $\frac{3}{8} \times \frac{1}{4}$

2. Calculate and write your answer in its simplest form.

a) $2\frac{3}{4} \times 1\frac{1}{4}$ **b)** $5\frac{2}{5} \times \frac{1}{3}$ **c)** $3\frac{1}{3} \times 2\frac{2}{5}$

d) $2\frac{1}{5} \times \frac{1}{5}$ **e)** $4\frac{2}{5} \times \frac{4}{5}$ **f)** $6\frac{2}{3} \times 4\frac{5}{6}$

3. Calculate and write your answer in its simplest form.

a) $\frac{1}{5}$ of $\frac{2}{3}$ **b)** $\frac{3}{5}$ of $\frac{3}{4}$ **c)** $\frac{2}{3}$ of $\frac{1}{15}$

d) $\frac{2}{7}$ of 28 **e)** $\frac{3}{4}$ of $2\frac{1}{2}$ **f)** $\frac{1}{8}$ of $3\frac{2}{3}$

4. Pam spends $\frac{2}{5}$ of her money on clothes, $\frac{1}{3}$ on groceries and $\frac{1}{6}$ on transport. Craig spends a third of what Pam spends on clothes. Craig earns only a quarter of what Pam earns. Pam earns R30 000 a month.

a) What fraction of her money does Pam spend on clothes, groceries and transport?

b) What fraction of his money does Craig spend on clothes?

c) How much does Craig earn per month?

Ordering and comparing

Learner's Book pages 151–153

1. Compare the following decimal fractions, by filling in <, > or = in the spaces provided.

a) 5,45 ☐ 5,54 **b)** 505,05 ☐ 505,50

c) 17,76 ☐ 17,176 **d)** 17,76 ☐ 17,7600

e) 450,00 ☐ 45,000 **f)** 3,101 ☐ 0,3101

Tip

To compare decimals you must have the same number of digits after the decimal comma. You can do this by putting zeros after the last digit. The zeros at the end of a decimal fraction do not change the value of the decimal fraction.

2. Arrange the following decimal fractions in ascending order.

a) 8,01; 0,81; 0,801; 8,43; 8,34; 8,043

b) 20,65; 206,5; 2,065; 2,0; 2,06; 2,0651; 206,51

c) 1 000,25; 100,250; 10,205; 102,02

3. Complete the following patterns.

a) 45,101; 45,071; 45,041; ☐; ☐; 44,951

b) 37,37; 37,47; 37,57; ☐; ☐; 37,87

4. Write the decimal fraction which lies halfway between.

a) 0,341 and 0,381 **b)** 373,3 and 373,5 **c)** 1,0 and 1,1

5. Write the decimal fractions which lie three quarters of the way between.

a) 0,341 and 0,381 **b)** 373,3 and 373,5 **c)** 1,0 and 1,1

6. Write the decimal fractions which lie one quarter of the way between.

a) 0,341 and 0,381 **b)** 373,3 and 373,5 **c)** 1,0 and 1,1

Reminder

Decimal fractions can be written in expanded notation as we do with whole numbers, e.g. $345{,}876 = 300 + 40 + 5 + \frac{8}{10} + \frac{7}{100} + \frac{6}{1\,000}$. We can identify the place value and the value of each digit.

100 000	10 000	1 000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1\,000}$	$\frac{1}{10\,000}$
0	0	0	3	4	5	8	7	6	0

7. Use the number 9 078,405 in expanded notation to answer the questions which follow.

a) What is the value of the 5?

b) What is the place value of the 4?

c) Write 9 078,405 in expanded notation.

d) Which digit occupies the thousandths place value?

Calculation with numbers in exponential form

Learner's Book pages 53–57

1. Simplify the following expressions.

a) $2 \times 3^2 + 2^3$ **b)** $(2^3)^2 - 3^3$ **c)** $(2^3)^2 + (2 \times 3)^3$

d) $5^2 \div 5$ **e)** $3^3 \div 3^2 + (2^3)^2$ **f)** $5^2 \div 5 \times 5^2 \div 5 - 5^2$

2. Determine the following.

a) The sum of 2 squared and 3 cubed

b) The difference between 4 squared and 3 squared

c) 45 written in exponential form

d) 270 written in exponential form

e) The smallest natural number by which 18 could be multiplied to create a perfect square

f) The smallest natural number by which 4 could be multiplied to create a perfect cube

3. Determine the following.

a) $\sqrt{25}$ **b)** $\sqrt[3]{27}$ **c)** $\sqrt{64}$ **d)** $\sqrt[3]{27^3}$

4. Simplify the following expressions.

a) $\sqrt{4} + 4^2$ **b)** $\sqrt{49} - 7$ **c)** $18 - \sqrt{81} - 3^2$

d) $\sqrt{16} + 9$ **e)** $\sqrt{100} + \sqrt{36}$ **f)** $\sqrt{100 - 36}$

g) $\sqrt{144} \div \sqrt{36}$ **h)** $\sqrt{144} \times \sqrt{36}$ **i)** $\sqrt[3]{64^3}$

5. Determine whether the following statements are true or false. If false, provide the correct solution.

a) $\sqrt[3]{27} - 3 = 0$ **b)** $\sqrt[3]{8} + \sqrt[3]{27} = \sqrt[3]{8 + 27}$

c) $\sqrt{10 - 6} = \sqrt{10} - \sqrt{4}$ **d)** $\sqrt[3]{27 \div 8} = \sqrt[3]{27} \div \sqrt[3]{8}$

e) $\sqrt{4x \times 4x} = 4x$ **f)** $\sqrt{4x^2 \times 4x^2} = 4x^2$

6. Determine the following.

a) $\sqrt[3]{6b^3 + 21b \times b \times b}$ **b)** $\sqrt[3]{125y^3}$ **c)** $\sqrt[3]{27y \times y^2}$

Counting, ordering and comparing integers

Learner's Book pages 300–304

1. Look at the following numbers and answer the questions below.
-12; 0; 9; 1; $\sqrt{2}$; $\sqrt[3]{8}$; -500; 500

Reminder

The set of integers is all the positive and negative whole numbers and includes the number zero.

a) What is the smallest integer in the list?

b) List all the negative integers.

c) Identify numbers which are not integers.

d) What is the biggest integer in the list?

e) List all the positive integers.

f) Arrange all the integers in the list from smallest to biggest.

2. Say whether the following statements are true or false.

a) $-2 > 0$

b) $0 > -2 > -3$

c) $\sqrt{5}$ belongs to the set of integers.

d) 1 does not belong to the set of integers.

e) The additive inverse of 0 is 0.

f) The additive inverse of 5 is -5.

3. Fill in <, = or > to make the following statements true.

a) $-2 \quad 2$ **b)** $-20 \quad 0$ **c)** $0 \quad -2$ **d)** $-200 \quad 200$

4. Answer the following questions.

a) How many integers are there between -2 and 0?

b) How many integers are there between -20 and 20?

c) Which integer is halfway between the following integers?

i) 3 and 5

ii) -50 and 0

iii) $-1\,000$ and 1 000

iv) $-10\,000$ and 1 000

d) Which integer is a quarter of the way between the following integers?

i) 1 and 5

ii) -50 and 0

iii) $-1\,000$ and 1 000

iv) $-10\,000$ and 1 000

e) Which integer is three quarters of the way between the following integers?

i) 1 and 5

ii) -51 and 5

iii) $-1\,000$ and 1 000

iv) $-10\,000$ and 1 000

Investigate and extend patterns

Learner's Book pages 321–322

1. Extend the following patterns.

a) 35; 41; 47; 53; ; ;

b) 6,13; 6,15; 6,17; ; ; ; 6,25

c) 13; 16; 20; 25; ; ;

d) 13; 24; 37; 52; ; ;

e) –35; –24; –13; –2; ; ;

f) –8; 0; 8; 16; ;

g) 0,125; 0,150; 0,175 ; ;

2. Write the formula for the following patterns in terms of n.

a) 1; 2; 3; 4; 5; 6; 7; …

b) 1; 3; 5; 7; 9; 11; …

c) 9; 15; 21; 27; …

d) 1; 4; 9; 16; …

3. Fill in the following table.

n	1	2	3	15	20	30	60
T_n	3	12	21				

4. Find the 50th term in each of the following patterns.

a) 7; 8; 9; 10; 11; …

b) 1; 6; 11; 16; …

c) 0; 5; 10; 15; …

5. a) Complete the table for the pattern on the right.

n	1	2	3	4
Number of dots				

b) Write a rule for the pattern in words.

Input and output values: Equivalent forms

Learner's Book pages 169–181

Reminder

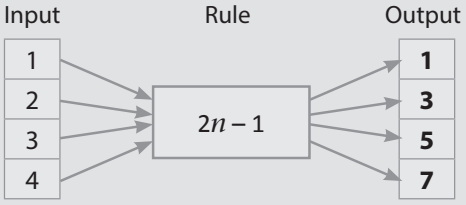
We can express the pattern 1; 3; 5; 7; 9; 11; … in three ways: as a table, a rule or a flow diagram.

1. Table

Position of term (n)	1	2	3	4	5	6
Term	1	3	5	7	9	11

$(T_1) = \mathbf{1} = 2(1) - 1$ (2 × pos. of term – 1)
$(T_2) = \mathbf{3} = 2(2) - 1$ (2 × pos. of term – 1)
$(T_3) = \mathbf{5} = 2(3) - 1$ (2 × pos. of term – 1)
$(T_4) = \mathbf{7} = 2(4) - 1$ (2 × pos. of term – 1)
$(T_n) = 2(n) - 1 = 2n - 1$ (2 × pos. of term – 1)

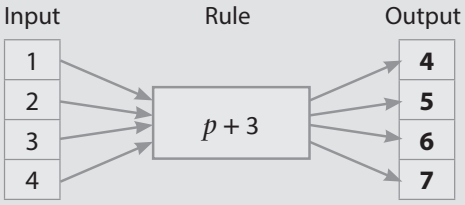
2. Flow diagram



3. Rule is $2n - 1$

Example

Using the rule $p + 3$, draw a flow diagram to determine the first four terms of the pattern.



1. Use the given rules to write the first four terms of the pattern.

a) $2m + 4$

b) $5x - 1$

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

d) $\frac{2}{3}k - 2$

2. Write down the rule in terms of n for each of the following patterns.

a) 1; 2; 3; 4; 5; 6; 7

b) 2; 4; 6; 8; 10; 12; 14

c) 3; 5; 7; 9; 11; 13

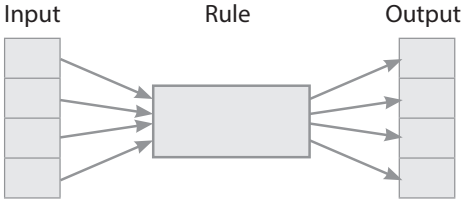
d) 3; 6; 9; 12; 15; 18

3. {1; 3; 4,5; 25} are input values of a flow diagram whose rule is $5p + 4$.

a) Complete the table.

Input				
Output				

b) Draw a flow diagram of the pattern.



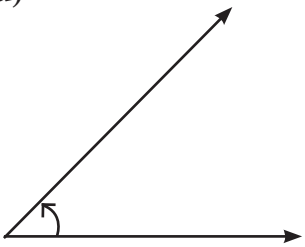
c) Write the rule in words.

Measuring angles

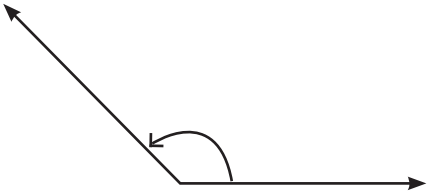
Learner's Book pages 63–68

1. Using a protractor, measure each of the angles and label whether it is acute, right, obtuse, reflex or straight.

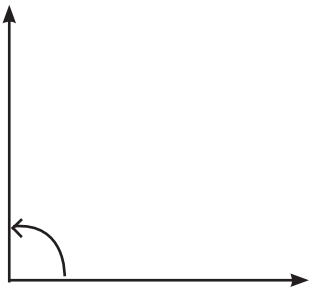
a)



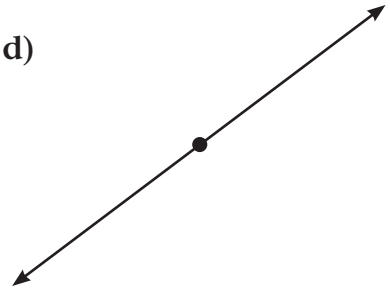
b)



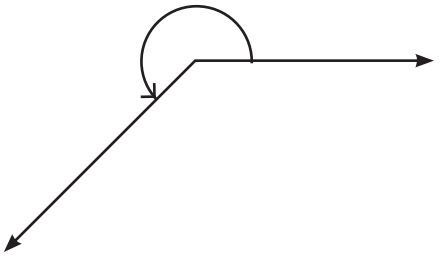
c)



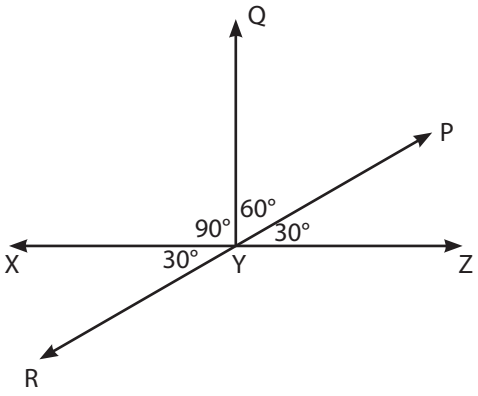
d)



e)



2. Use the figure below to complete the following statements.



a) XYQ measures _____. It is a _____ angle.

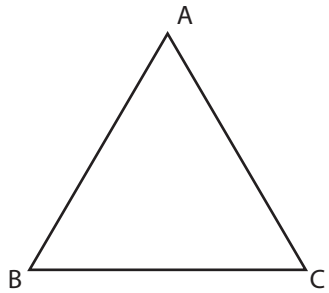
b) QYP measures _____. It is an _____ angle.

c) RYQ measures _____. It is an _____ angle.

d) XYZ measures 90° + 60° + 30° or _____.
It is a _____.

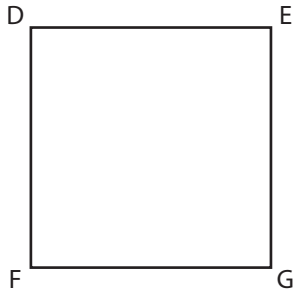
3. Measure the size of the interior (inside) angles of the figures below.

a)



A	B	C

b)



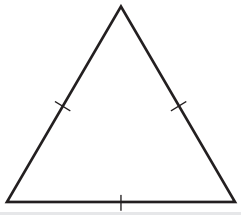
D	E	F	G

Triangles

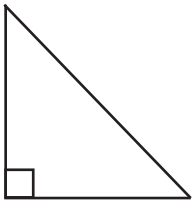
Learner's Book pages 87–96

1. Classify the triangles below as right-angled, isosceles or equilateral. Give a reason for each of your answers.

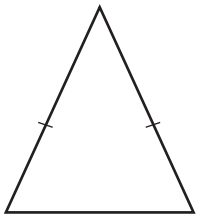
a)



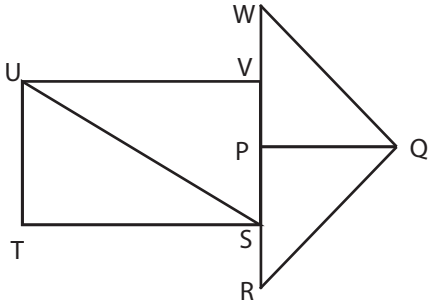
b)



c)



2. Study the figure below.

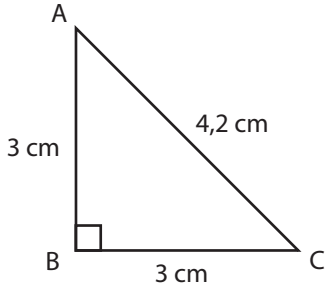


a) How many triangles are there?

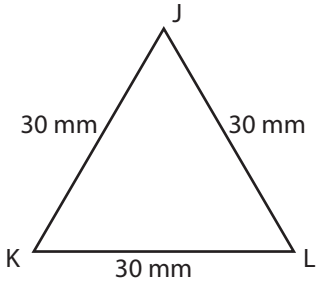
b) Identify the different types of triangles in the figure.

3. Use a protractor to measure the angles of the triangles below.

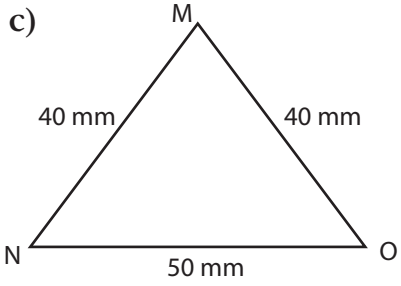
a)



b)



c)



4. Match the description in Column A with the correct triangle in Column B.

Column A	Column B
A. Two of the sides are the same length	1. Equilateral triangle
B. All three angles are less than 90°	2. Isosceles triangle
C. Only one angle is larger than 90°	3. Right-angled triangle
D. All three sides are the same length	4. Acute-angled triangle
E. One angle is 90°	5. Obtuse-angled triangle

Translations

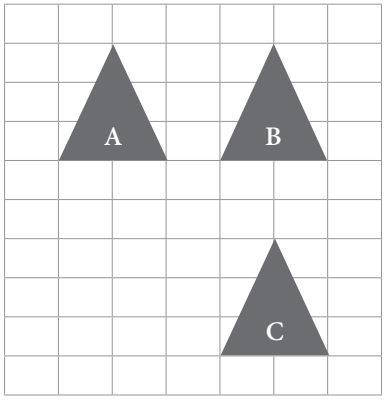
Learner's Book pages 266–271

Reminder

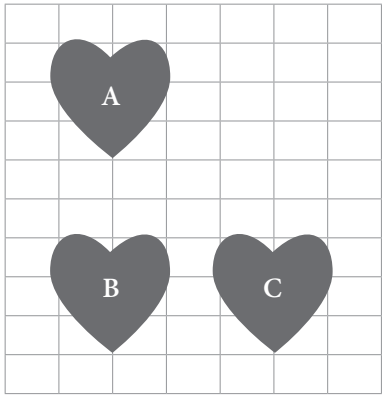
Transformations of 2D shapes involve changing the position of shapes by moving them around or changing their size. Types of transformations include translations, reflections and rotations.

1. Describe the translation from A to C in the figures below.

a)



b)

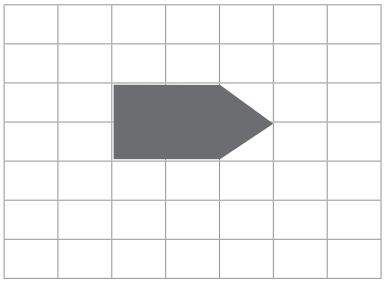


Reminder

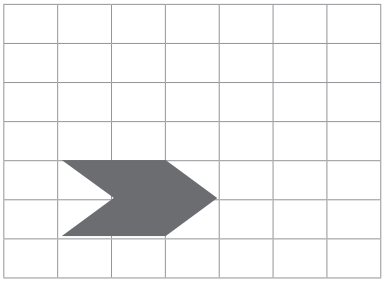
A translation translates (slides) a shape to a new position by specifying the number of units moved.

2. Translate the following on the grids provided.

a) 2 units left and 3 units down



b) 3 units right and 4 units up

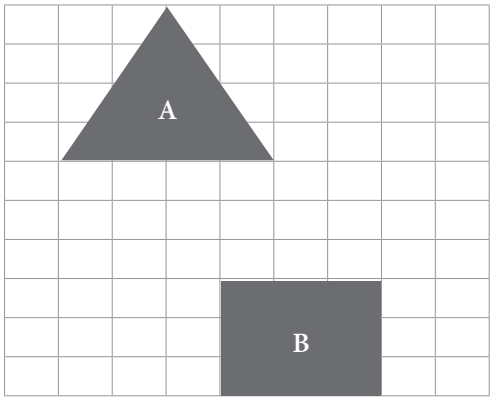


3. In all the translations above, what do you notice about the size and shape of the figures?

4. Translate A and B as required.

a) A: 4 units right

b) B: 3 units up



Regular and irregular polygons

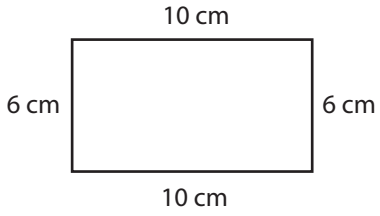
Learner's Book pages 185–195

Reminder

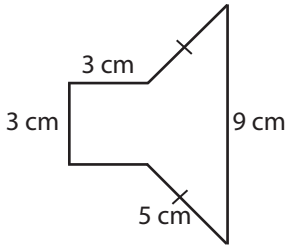
The distance around a figure is the perimeter.
Perimeter of a rectangle = (2 × length) + (2 × breadth) = $2l + 2b$
Perimeter of a square = 4 × side = $4s$

1. Find the perimeter of each of the following.

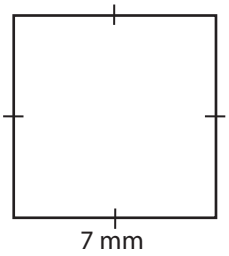
a)



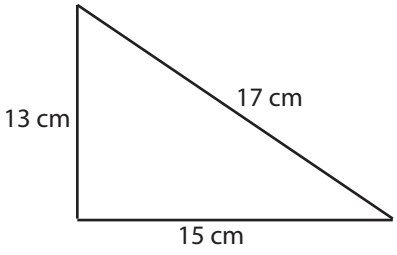
b)



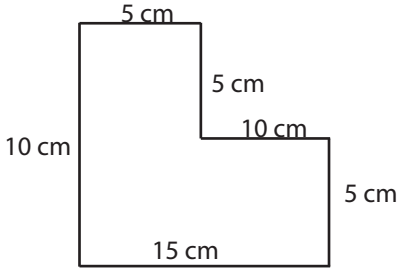
c)



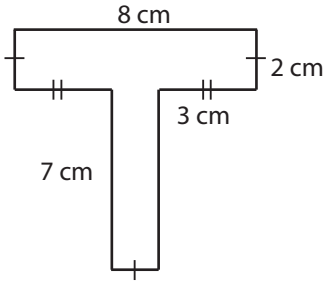
d)



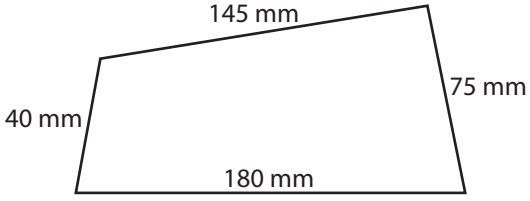
e)



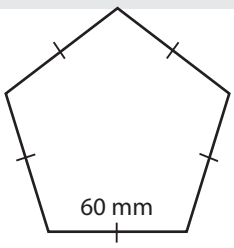
f)



g)



h)



Cubes and rectangular prisms

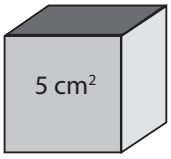
Learner's Book pages 201–203

Reminder

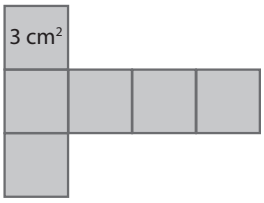
Surface area is the total area of all the outside faces of a 3D object.
A net is a 2D shape that can be folded to make a 3D object.

1. Calculate the surface area of the cubes and nets. The area of one face of the shape is shown in each diagram.

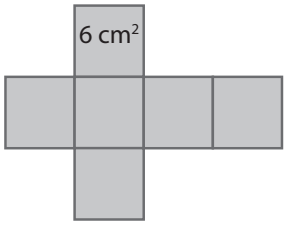
a)



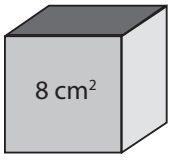
b)



c)

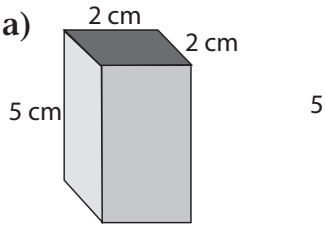


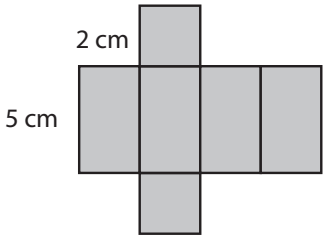
d)



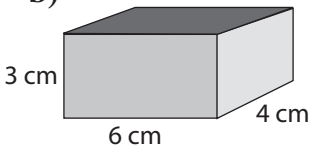
2. Study the following rectangular prisms and their nets and calculate the area of each face inside the net.

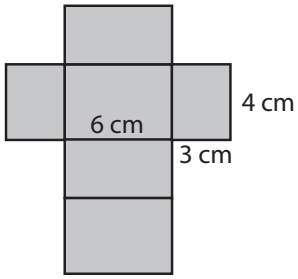
a)





b)





3. a) The surface area of a cube is equal to 201,84 cm². Calculate the length of one side of the cube.

b) Calculate the length of a rectangular prism with breadth 13,4 cm, height 19,7 cm and surface area 1 640,12 cm².

Organise and summarise data

Learner's Book pages 348–354

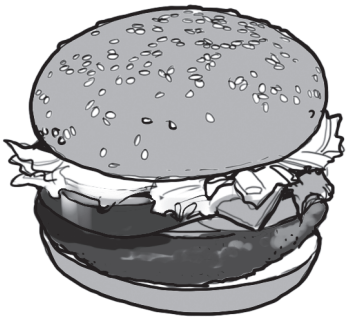
Reminder

When recording and organising data you can use.
1. tally marks
2. tables
3. stem-and-leaf plots.

1. A survey was done at school on the popularity of fast food outlets. This was the response from 50 learners.

M	W	N	W	R	M	W	M	N	W
M	N	M	M	W	N	R	M	N	M
R	M	N	W	M	R	R	M	N	W
M	M	W	M	W	R	N	M	W	N
N	W	M	M	W	R	M	W	M	R

Key: McDuffy's (M), Ninja's (N), Romeo's Pizza (R), Whippy (W)



a) Complete the tally table.

Fast food outlet	Tally	Frequency
McDuffy's		
Ninja's		
Romeo's Pizza		
Whippy		

Reminder

Each tally mark | counts as one. Four tally marks with a line crossed through them 𝍸 counts as five.

b) Using the tally table answer the following questions.

i) How many learners prefer Ninja's?

ii) Which is the least popular fast food outlet?

iii) Which is the most popular fast food outlet?

c) Represent the data in the tally table in a stem-and-leaf plot.

Stem	Leaf

How to develop rubric and checklist assessment tools

Rubrics

A rubric is a tool teachers use to assess a learner's performance on a specific task. It is presented in the form of a grid that clearly outlines the criteria used for assessment as well as different levels of performance per criterion.

Benefits of using a rubric

- A rubric helps learners to understand objectives. Developing rubrics with your learners will help them to understand the purpose and content and help them to prepare for the assessment.
- A rubric has a clear and standardised approach to assessment, which ensures that learners are assessed consistently and fairly.
- A rubric allows teachers to provide specific feedback to learners, highlighting areas of strength and areas for improvement.
- A rubric helps learners get a clear idea on how to improve their performance after assessment.
- A rubric allows learners to self-improve. Encourage learners to use the rubric before they hand in their work.
- A rubric is easy to use and can be easily adapted to meet changing needs.

Steps to creating a rubric

Step 1: Clearly define the purpose of the assessment.
Use the assessment guidelines in the curriculum documents to determine what task/assignment the learners are required to complete.

Step 2: Define the criteria.
Use the objectives in the curriculum documents to consider what skills, knowledge or behaviours the assessment will evaluate.

Make sure that:

- criteria can be observed and measured
- criteria are important to the task at hand
- each criteria assesses a single aspect of the task.

Each criteria contains levels of performance. When creating these, consider:

- what will constitute outstanding achievement
- how will you define moderate or adequate achievement
- how would you define work that falls below expectations.

Ask yourself: Are there key criteria points that should carry a greater weight than others?

Step 3: Design a rating scale that clearly defines the levels of performance.
Check your mark allocation to ensure that your rubric falls in line with curriculum expectations.

Make sure you use language and terminology that the learner is familiar with so that they have a clear understanding of what is required of them.

Provide a scale of achievement that can assess the learners' overall competency in completing the task. For example, you can provide an overall mark according to the seven-point rating code or scale of achievement:

Rating code	Description of Competence	Percentage
7	Outstanding achievement	80–100
6	Meritorious achievement	70–79
5	Substantial achievement	60–69
4	Adequate achievement	50–59
3	Moderate achievement	40–49
2	Elementary achievement	30–39
1	Not achieved	0–29

Step 4: Write descriptions of expected performance at each level of the rating scale.
Describe observable and measurable behaviour and use parallel language across the scale. Indicate the degree to which the standards are met. Ensure that learners understand the expectations before and during the assessment.

Step 5: Create the rubric.
For ease of use, keep it to one page. Ask your colleagues for feedback and consider testing it before you use it for assessment. After you use the rubric, consider how effective it was and make any necessary revisions.

Checklists

A checklist is a simple assessment tool that provides a list of items or criteria to be checked off. It differs from a rubric in that it provides learners with the criteria of the requirements of an assignment rather than a means of assessing acquired knowledge. A checklist can be used solely by you as a teacher, or you can give your learners a checklist that they can refer to in order to make sure that they have included the required components for a task.

Checklists usually consist of a number of statements that refer to specific criteria and where the answer will be, for example, “Yes” or “No”, or “Achieved”, “Not yet” or “Almost”.

Benefits of using a checklist

- A checklist ensures that all relevant criteria are assessed and evaluated.
- A checklist helps to ensure consistent assessment of specified criteria.
- A checklist can be used by learners as a self-assessment tool.
- A checklist identifies learning needs in a clear and simple way.
- A checklist is easy to create and use and provides an uncomplicated guide for assessment.

Steps to create a checklist

Step 1: Define the purpose and what you want to assess.
This could be specific skills or a general assessment.

Step 2: Identify the criteria.
What specific elements or content will be assessed?

Step 3: Create your checklist.
Check that it contains everything you want to assess.

Exemplar:
Planning a questionnaire

Planning a questionnaire checklist			
Did the learner:	**Yes 2**	**Partially 1**	**No 0**
specify the topic and purpose of the project?			
identify the population that he/she chose?			
identify the sample that he/she chose?			
explain how he/she chose that particular sample?			
make a credible attempt to choose a sample that fairly represented the whole population?			
plan a coherent, well thought-out questionnaire?			
Total	**_____/ 12**		

Intervention strategies

Baseline assessment and intervention strategies

Some learners may experience academic backlogs for various reasons, including the impact on learning due to the COVID-19 pandemic, underlying learning barriers or special education needs such as visual or hearing impairments or intellectual barriers. Baseline assessment will help you identify learners that may be experiencing these barriers.

Analysing baseline assessment questions will provide insight into learners' current knowledge and skills regarding certain topics, as well as their preparedness for the work ahead. The results of baseline assessments can help to identify the areas where learners require support and/or intervention.

Learners may require support and/or intervention for the following reasons:

- barriers to learning
- class size
- reading comprehension (the ability to understand what they have read).

Barriers to learning

Some learners may face barriers to learning. It is important to accommodate learners with barriers to learning to ensure that our classrooms remain inclusive. These learners may require and should be granted more time for completing tasks, acquiring thinking skills (own strategies), and completing assessment activities. Adapt the number of activities to be completed without interfering with learners gaining the required skills. Learners experiencing barriers to learning can also be paired with others who may be able to support them.

Class size

- Peer tutoring can be an effective intervention method when class size is problematic.
- Quieter learners often struggle in a large class, as they tend not to ask questions. Organising learners into groups or pairs can help to create a more inclusive and enabling learning environment.
- Ensure that groups are made up of learners with varying ability, so that learners who may be struggling are supported by their peers.
- Peer assessment can also be used successfully during informal assessment and allows you to gauge learners' understanding in a less intimidating manner than a formal test or assignment.
- The following strategies can be used in a large class:
    - *Thumbs up/thumbs down:* Check understanding by a show of thumbs. Thumbs up indicate that learners have understood; thumbs down show that they have not understood; thumbs sideways could show that they are not sure.
    - *Response boards:* These are small chalkboards or whiteboards where learners record their response to a question. When you say "Show your answers" they all hold up the board. This way you can quickly see who is struggling.
    - *Show fingers 1-2-3:* Ask learners to show fingers to indicate if they understand activity instructions before working in a group. 1 = I do not understand; 2 = I sort of understand but I need some help; 3 = I understand completely.

Reading comprehension

- Support learners by giving them pre-reading questions and post-reading strategies to organise what they have learnt. Pre-reading questions could include asking the learners what they already know about the topic. Teach learners to summarise the content into bullet points and make use of mind maps. This requires the learners to rewrite the content in their own words.
- Write difficult terminology on the board and give simple explanations.
- Diagrams can be very useful to explain concepts in a way that learners can visualise the situation.

General teaching intervention strategies

Teach from the learner's point of view

- Put yourself in the learner's position: If you were the learner, what would you like the teacher to explain or show you that you could not learn previously?
- Remember that learners might still have emotional issues related to the COVID-19 pandemic, which you may need to address.

Reteach topic(s) for which learners achieved low scores (closing the gap)

- Focus on concepts, and not only on factual content. Then use illustrations to support learners' understanding and avoid superficial rote learning. The more "real-life" examples used, the easier it will be for the learners to conceptualise the topic.
- Make the structure of your lessons and teaching materials clear: State specific, achievable goals, provide graphic organisers to link parts of the lesson and give frequent summaries of sections of the lesson. A graphic organiser can be any visual representation of content that gives an immediate overview of main points.
- Refer frequently to your progress in terms of the lesson structure. This will help learners to develop an overall and cohesive (holistic) grasp of the content.
- Skills, knowledge and concepts run like threads through the previous grades. Explain these threads to learners, as you begin teaching a new topic or module – it will help learners to link the new content to what they already know.

Metacognition

Metacognition is the ability to understand our own thought processes. It is essential that metacognition takes place during lessons.

Learners retain information best when they can visualise situations. Visual aids, such as flash cards and mind maps, and practical work can aid with developing metacognition, or getting learners to think about and understand their own thought processes. After completing practical tasks, give learners sentence starters to complete. For example: I learnt . . .; I wonder . . .; I still want to know . . .; I still don't understand . . .; I still have a question about . . . .

Retaining information

- Flash cards and mind maps can be useful tools to help learners memorise facts.
- Encourage learners to break down content into more manageable sections. They can then create a mind map for each sub-topic. Tables can also help learners summarise content into more manageable sections.
- A mnemonic is a word, sentence or poem that helps you remember something. Mnemonics help learners to memorise content. Use the first letter of each word to create a sentence that the learners can memorise easily. For example, a mnemonic such as "**E**at **A**n **A**pple **A**s **A** **N**ice **S**nack" can help learners to memorise the names of the continents: **E**urope, **A**sia, **A**frica, **A**ustralia, **A**ntarctica, **N**orth America, **S**outh America.

Develop presentation skills

Many learners find it challenging to speak in front of the class, but this improves with practice. Encourage learners to answer questions in class and take part in class discussions by using one or more of the following strategies:

- *Use the think-pair-share method:* Posing a question and giving learners a short time to think about it, followed by discussion with a partner and then sharing with others. Learners who are shy will find it easier to share ideas with a partner first.
- *Tell-check-say:* A learner tells the answer to a friend, together they check if the answer is correct by referring to the textbook, and then the first learner says the answer out loud to the class or writes it down.
- *Target basic and then more advanced questions to specific learners based on their readiness to answer them*: A good strategy is to first ask the question to the whole class. This ensures that everyone thinks about it. Then, ask a specific learner the question.
- *Keywords on cards:* These can be used to help the learner remember their presentation. Eye contact is essential, so emphasise to learners that they should not read their presentation.

Interventions for learners with special education needs

- Special educational needs may include visual or hearing impairments or intellectual barriers. Do not form an opinion about a learner too early This could lead to an inaccurate assessment of a learner's barrier, or an inaccurate assessment of the existence of a barrier (when in fact there may not be one). If the barrier is obvious after the first term and becomes a serious obstacle to the learner, seek professional help from the district office.
- Immediate steps could include: observing the learner inside and outside of the classroom, contacting the learner's previous teachers and consulting learner progress reports to understand their needs.

Selected answers

Page 8

1. a) 410 450; 450 451; 450 541; 451 541 **b)** 370 050; 370 125; 370 250; 370 504 **c)** 89 999; 99 901; 99 909; 99 910; 99 990 **2. a)** 370 504; 370 250; 370 125; 370 050 **b)** 99 990; 99 910; 99 909; 99 901; 89 999 **c)** 1 011 100; 1 011 001; 101 111; 101 101 **3. a)** > **b)** = **c)** > **d)** = **e)** < **f)** <
4. a) 259 996 **b)** 59 560 **c)** 1 011 002 **d)** 55 555 **5. a)** 987 320 400 **b)** 251 000 **c)** 251 400 **d)** 251 200
6. a) 987 320 300 **b)** 250 800 **c)** 251 200 **d)** 251 000
7. a) Five hundred and forty-three million, seven hundred and sixty-five thousand, two hundred. **b)** Five hundred and forty-three million, seven hundred and fifty-four thousand, two hundred and one. **c)** Nine hundred and eighty million and one thousand. **d)** Five hundred and forty-three million, ten thousand and ten.

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1. a) $\frac{2}{9}$ **b)** $\frac{3}{25}$ **c)** $\frac{2}{5}$ **d)** $\frac{3}{32}$ **2. a)** $3\frac{7}{16}$ **b)** $1\frac{4}{5}$ **c)** 8 **d)** $\frac{11}{25}$
e) $3\frac{13}{25}$ **f)** $32\frac{2}{9}$ **3. a)** $\frac{2}{15}$ **b)** $\frac{9}{20}$ **c)** $\frac{2}{45}$ **d)** 8 **e)** $1\frac{7}{8}$ **f)** $\frac{11}{24}$
4. a $\frac{27}{30}$ **b)** $\frac{2}{15}$ **c)** R7 500

Page 10

1. a) < **b)** < **c)** > **d)** = **e)** > **f)** > **2. a)** 0,801; 0,81; 8,01; 8,043; 8,34; 8,43 **b)** 2,0; 2,06; 2,065; 2,0651; 20,65; 206,5; 206,51 **c)** 10,205; 100,250; 102,02; 1 000,25 **3. a)** 45,011; 44,981 **b)** 37,67; 37,77
4. a) 0,361 **b)** 373,4 **c)** 1,05 **5. a)** 0,371 **b)** 373,45 **c)** 1,075
6. a) 0,351 **b)** 373,35 **c)** 1,025 **7. a)** $\frac{5}{1\,000}$ **b)** Tenths or $\frac{1}{10}$
c) $9\,000 + 70 + 8 + \frac{4}{10} + \frac{5}{1\,000}$ **d)** 5

Page 11

1. a) 26 **b)** 37 **c)** 280 **d)** 5 **e)** 67 **f)** 0 **2. a)** 31 **b)** 7
c) 5×3^2 **d)** 10×3^3 **e)** 2 **f)** 2 **3. a)** 5 **b)** 3 **c)** 8 **d)** 27
4. a) 18 **b)** 0 **c)** 0 **d)** 13 **e)** 16 **f)** 8 **g)** 2 **h)** 72
i) 64 **5. a)** True **b)** False $\sqrt[3]{8} + \sqrt[3]{27} = 3$ and $\sqrt[3]{8+27} = \sqrt[3]{35} \neq 3$
c) False $\sqrt{10-6} = 4$ and $\sqrt{10} - \sqrt{4} = \sqrt{10} - 2 \neq 4$ **d)** True **e)** True
f) True **6. a)** $3b$ **b)** $5y$ **c)** $3y$

Page 12

1. a) –500 **b)** –12; –500 **c)** $\sqrt{2}$ **d)** 500 **e)** 0; 9; 1; $\sqrt[3]{8}$; 500
f) –500; –12; 0; 1; $\sqrt[3]{8}$; 9; 500 **2. a)** False **b)** True **c)** False
d) False **e)** True **f)** True **3. a)** < **b)** < **c)** > **d)** < **4. a)** 1
b) 39 **c) i)** 4 **ii)** –25 **iii)** 0 **iv)** –4 500 **d) i)** 2 **ii)** –37
iii) –500 **iv)** –7 250 **e) i)** 4 **ii)** –9 **iii)** 500 **iv)** –1 750

Page 13

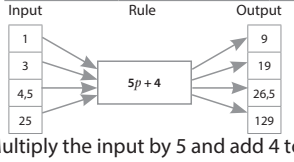
1. a) 59; 65; 71 **b)** 6,19; 6,21; 6,23 **c)** 31; 38; 46 **d)** 69; 88; 109
e) 9; 20; 31 **f)** 24; 32 **g)** 0,2; 0,225; 0,250 **2. a)** $T_n = n$
b) $T_n = 2n - 1$ **c)** $T_n = 6n + 3$ **d)** $T_n = n \times n$ **3.** 129; 174; 264; 534
4. a) 56 **b)** 246 **c)** 245 **5. a)** 1; 3; 6; 10 **b)** $T_n = n(\frac{n+1}{2})$

Page 14

1. a) 6; 8; 10; 12 **b)** 4; 9; 14; 19 **c)** 1; $1\frac{1}{2}$; 2; $2\frac{1}{2}$ **d)** $-1\frac{1}{3}$; $-\frac{2}{3}$; 0; $\frac{2}{3}$
2. a) n **b)** $2n$ **c)** $2n + 1$ **d)** $3n$
3. a)

Position	1	3	4,5	25
Term	9	19	26,5	129

b)



c) Multiply the input by 5 and add 4 to the product.

Page 15

1. a) Acute **b)** Obtuse **c)** Right angle **d)** Straight angle
e) Reflex angle **2. a)** 90°; right angle **b)** 60°; acute angle
c) 90° + 30° = 120°; obtuse angle **d)** 90° + 60° + 30° = 180°; straight angle **3. a)** A = 56° B = 60° C = 64°
b) D = 90° E = 90° F = 90° G = 90°

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1. a) Equilateral – all sides are equal **b)** Right-angled – one right angle **c)** Isosceles – two sides are equal **2. a)** 5 **b)** four right-angled, one isosceles **3. a)** ∠A = 45°, ∠C = 45° **b)** ∠J = 60°, ∠K = 60°
c) ∠N = 56°, ∠O = 56°, ∠M = 68° **4.** A-2 B-4 C-5 D-1 E-3

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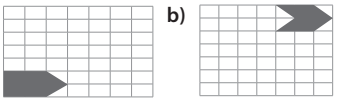
1. a) 3 units right 5 units down
b) 5 units down 3 units right
2. a) **b)**



3. The size and shape stay the size. **4. a)-b)**

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1. a) 32 cm **b)** 28 cm **c)** 28 cm **d)** 45 cm **e)** 50 cm
f) 34 cm **g)** 440 mm **h)** 300 mm

Page 19

1. a) 30 cm² **b)** 18 cm² **c)** 36 cm² **d)** 48 cm²
2. a) Sizes are 10 cm², 10 cm², 10 cm², 10 cm², 4 cm² and 4 cm²
b) Sizes are 24 cm², 24 cm², 12 cm², 12 cm², 18 cm² and 18 cm²
3. a) 5,8 cm **b)** 16,8 cm

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1. a) McDuffy's: 𝍸 𝍸 𝍸 |||| 19; Ninja's: 𝍸 𝍸 10;
Romeo's Pizza: 𝍸 ||| 8; Whippy 𝍸 𝍸 ||| 13 **b) i)** 10
ii) Romeo's **iii)** McDuffy's **c)** Stem: 0 Leaf: 8. Stem: 1 Leaf: 0 3 9 Key: 0|8 = 8

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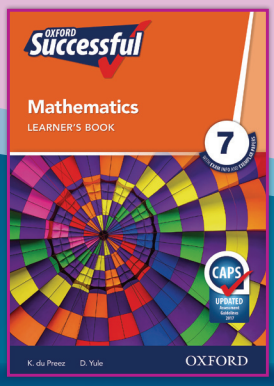

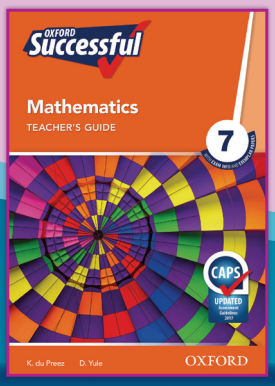

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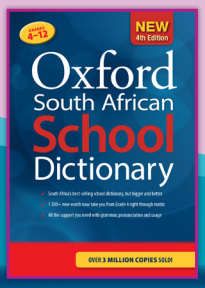

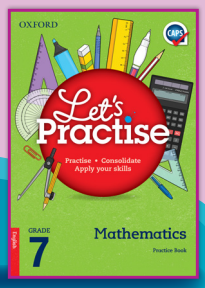

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