

Grade 9 Examination Revision Workshop

29 October 2026



QUESTION 1 – WHOLE NUMBERS

1.1 Use the fact that $60 = 2^2 \times 3 \times 5$ and $70 = 2 \times 5 \times 7$ to find the **lowest common multiple** of 60 and 70. (2)

1.2 Bus runs 9 m in 12 seconds while Sipho runs 10 m in 15 seconds. Who ran **faster**? Justify your answer with calculations. (3)

1.3 Nonhlanhla invests R1000 into an account which earns 8% compound interest per year. How much does she have after 5 years? $A = P(1 + i)^n$

[8]

QUESTION 2 – INTEGERS

A calculator may NOT be used in this question

2.1 Showing your working evaluate (find the value of):

$$-5 + (-3) - (-8 \times 2) + \frac{10}{-5} \quad (3)$$

$$2.2 \quad (8 - 9)^2 - \frac{\sqrt{36}}{\sqrt[3]{-8}} - (-1)^3 \quad (3)$$

$$2.3 \quad -5(2 - 6) \quad (2)$$

$$2.4 \quad \frac{12 - 6 + 5 + 6 - 5}{-3 + 2 + 3} \quad (3)$$

QUESTION 3 – EXPONENTS [11]

$$3.1 \quad \text{Simplify: } b^5 \div b^5 + c^0 \quad (2)$$

$$3.2 \quad \text{Simplify: } 3^2 x^5 \times 3^5 x^8 \quad (2)$$

$$3.3 \quad \text{Simplify: } b^5 c^{-2} \times c^5 b^{-2} \quad (2)$$

$$3.4 \quad \text{Simplify, expressing your answer with positive exponents:}$$

$$\frac{c^6 g^{-3}}{c^2} \quad (2)$$

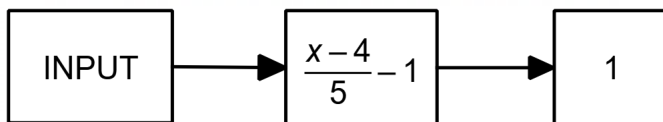
3.5 Simplify, expressing your answer with positive exponents:

$$\frac{(2b^2c)^3 \times 3c^3b}{12b^8c^5} \quad (4)$$

[12]

QUESTION 4 – FUNCTIONS AND RELATIONSHIPS

4.1 Determine the input in the flow diagram below. Try to communicate your thinking as an incorrect answer on its own will not score any marks. (3)



4.2 Complete the following table: (2)

1	2	3	4	x	
2	3	4	5		y

[5]

QUESTION 5 – NUMERIC AND GEOMETRIC PATTERNS

5.1 Consider the sequence: 2 ; 5 ; 8 ; 11 ;

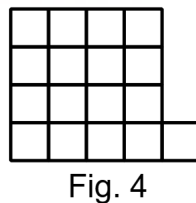
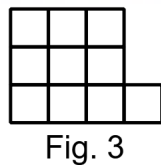
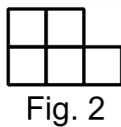
Give a rule, in terms of n for the n th term (3)

5.2 Consider the sequence:

-1 ; 2 ; -4 ; 8 ; -16 ;

Describe in words how one gets from one term to the next (1)

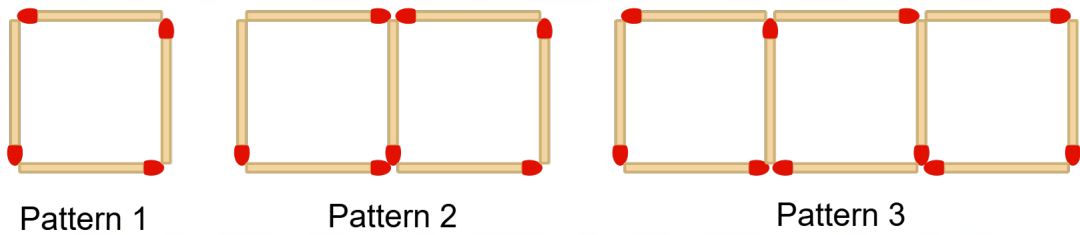
5.3 Consider the sequence of squares:



5.3.1 Give the number of small squares in Fig. 5 (1)

5.3.2 Give the number of small squares in Fig. n (3)

5.4 Nkosinathi is making patterns with matchsticks:



Complete the following table by filling in the blanks (4)

Pattern number	1	2	3			
Number of squares	1	2	3		t	
Number of matches	4	7		22		m

[12]

QUESTION 6 – ALGEBRAIC EXPRESSIONS

6.1 In the expression below underline all those terms which are **like**: (1)

$a + 5a^2b + 7b + 2ab^2 + 9 + 3ba^2$

6.2 Expand and simplify: $(a + 2)^2$ (1)

6.3 If $x = 3$ and $y = -2$ then evaluate (find the value of):

7.3.1 $2x - 3y$ (2)

7.3.2 x^2y (2)

6.4 Factorise: $15a^3b + 10a^2b^3 - 5a^2b$ (2)

6.5 Factorise: $2g^2 - 8$ (2)

6.6 Factorise: $b^2 - 2b - 8$ (2)

6.7 Simplify: $\frac{x^2 - x - 6}{2x - 6}$ (3)

6.8 Simplify: $\frac{x^2 - x - 2}{x^2 - 4}$ (3)

[18]

QUESTION 7 – ALGEBRAIC EQUATIONS

7.1 Set up an equation to model the problem being described.

Phumlani takes a number (x). He multiplies it by three and then subtracts two. He gets 19. (2)

7.2 Solve for x by inspection: $3x - 4 = 26$ (1)

7.3 Solve for p : $4p + 2 = 2(p + 3)$ (3)

7.4 Solve for x : $x(x - 3) = 10$ (3)

7.5 Solve for x : $x(x + 2) - 5(2 + x) = 0$ (3)

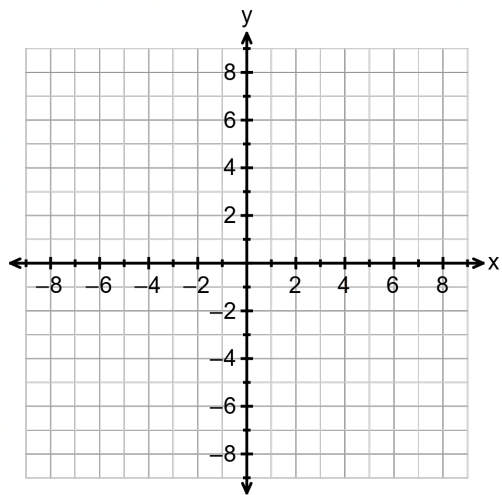
[12]

QUESTION 8 – GRAPHS

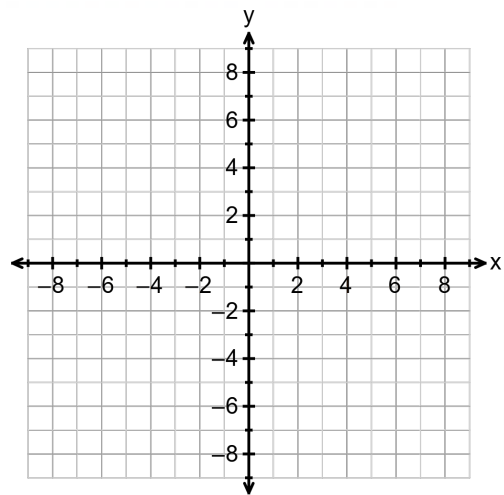
- 8.1 Consider the graph defined by $y = 2x + 8$. Determine the intercept with each of the axes, expressing your answers as points. (2)

- 8.2 Complete the tables and draw the graphs on the axes provided: (4)

x	-3	0	
$y = x - 1$	-4		5

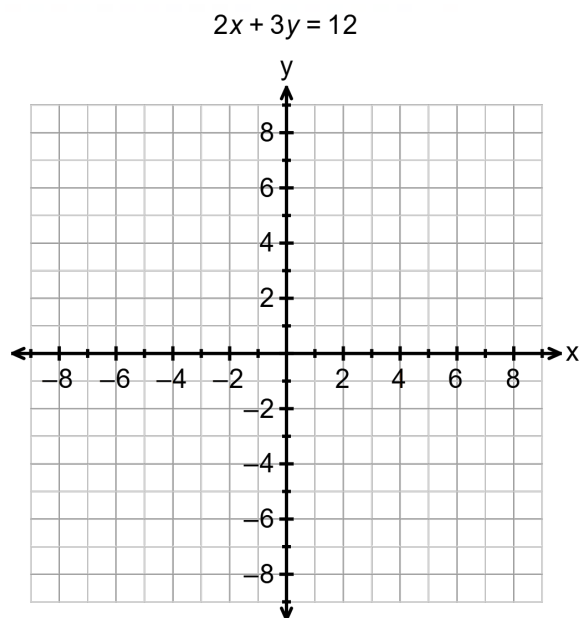
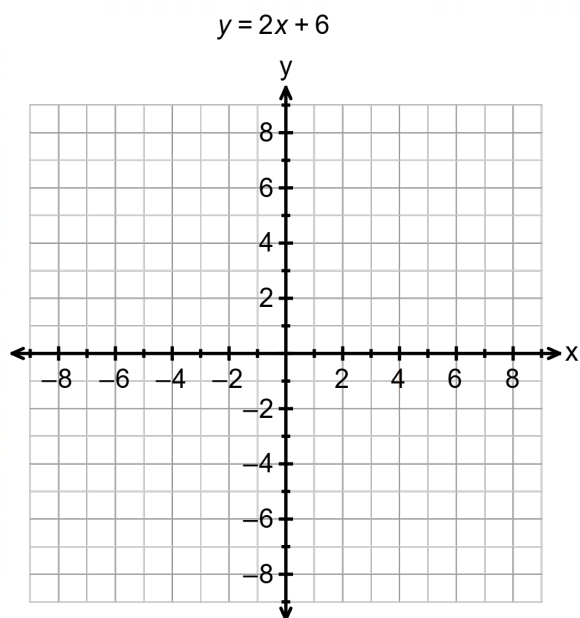


x	-3	0	2
$y = -2x - 2$			-6



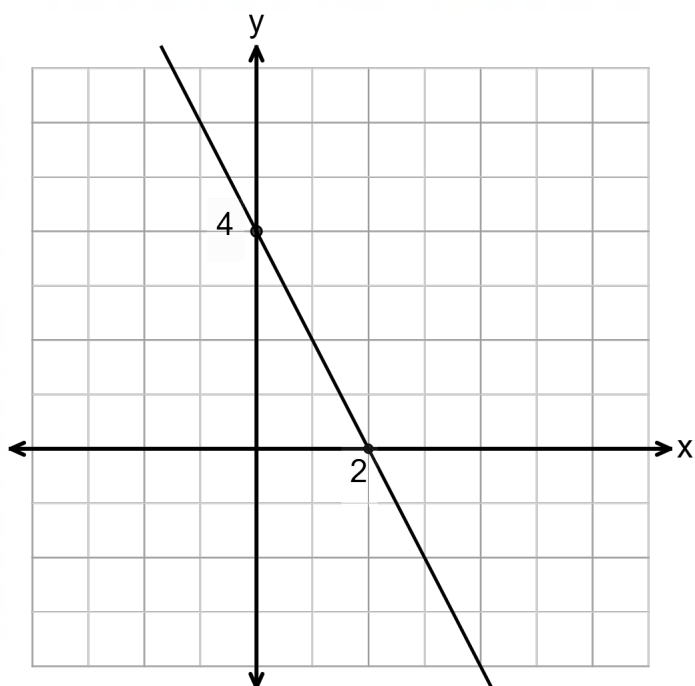
8.3 Draw the graphs on the axes provided:

(4)



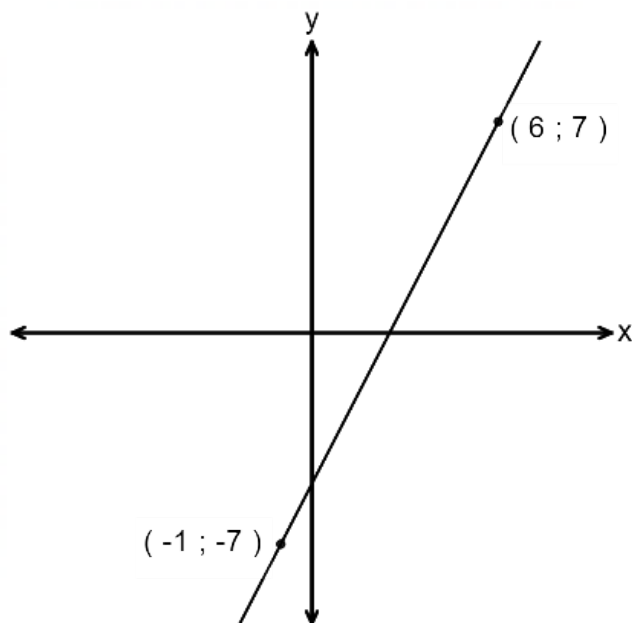
8.4 Determine the equation of the graph shown below:

(2)



8.5 Determine the equation of the graph shown below:

(3)



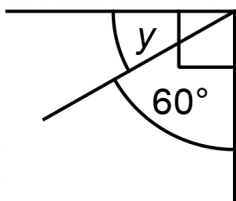
[12]

QUESTION 9 – GEOMETRY OF STRAIGHT LINES

9.1

9.1.1 Determine y giving a reason

(2)

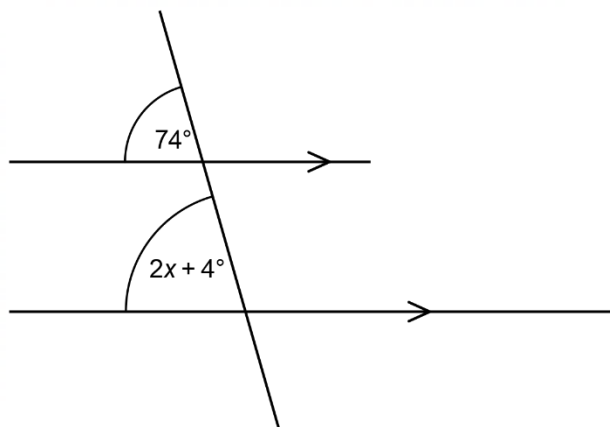


9.1.2 Give the complement of 20°

(1)

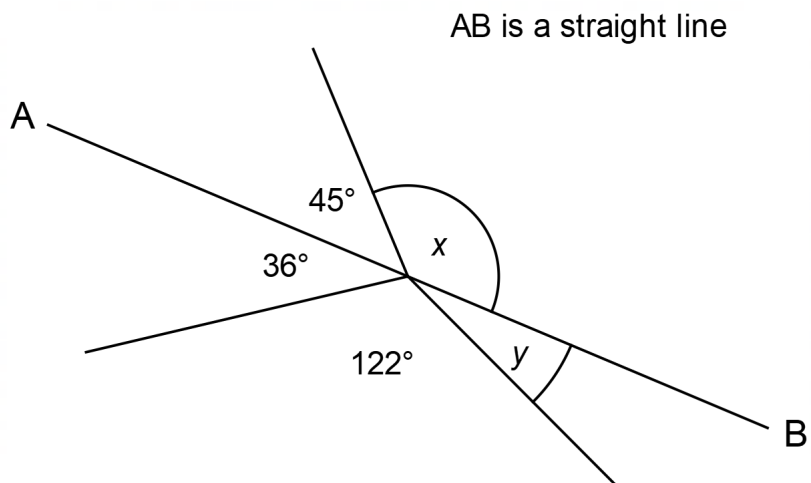
9.2 Determine x giving a reason and showing working

(3)



9.3 Determine x and y giving reasons and showing working

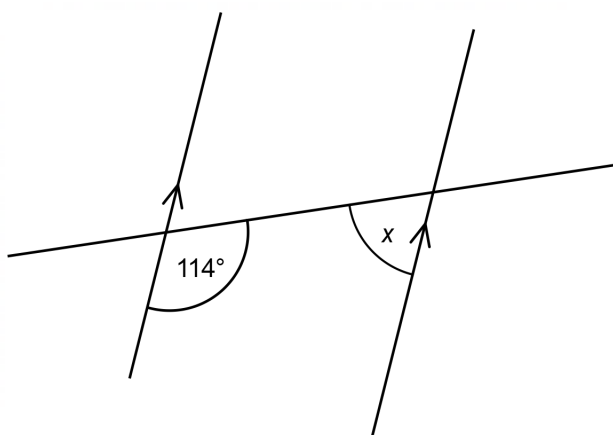
(3)



9.4.

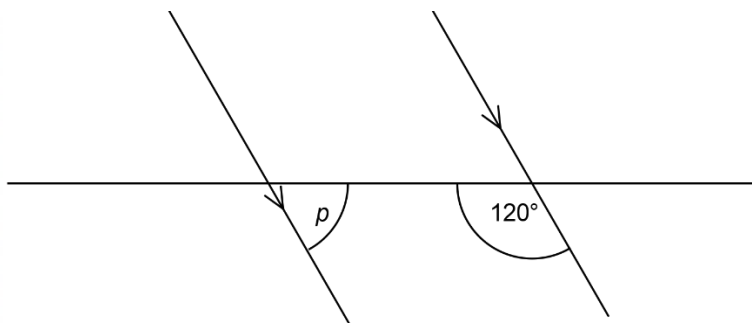
9.4.1 Find x . No reason is required.

(1)



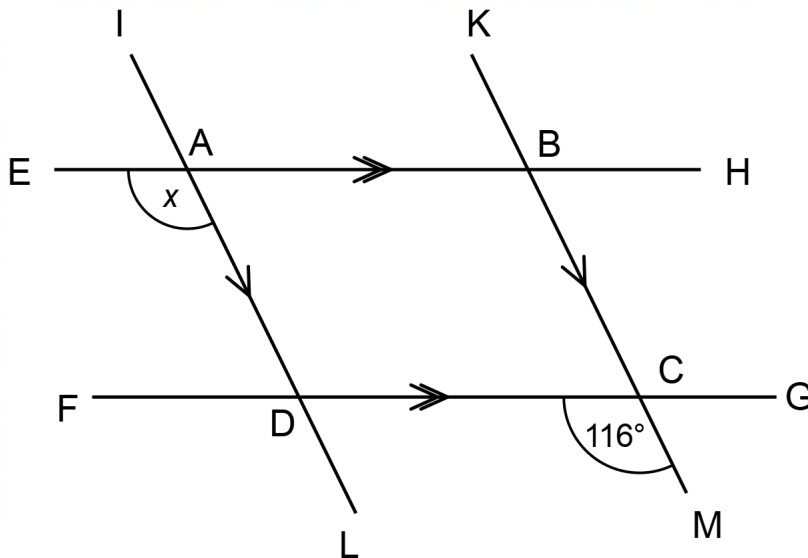
9.4.2 Find p giving a reason.

(2)



9.5 Determine the size of x using only alternate angles and giving all reasons:

(4)

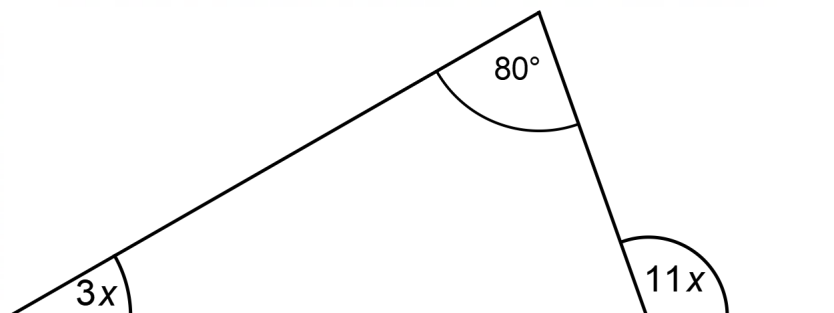


QUESTION 10 – GEOMETRY OF 2D SHAPES

[16]

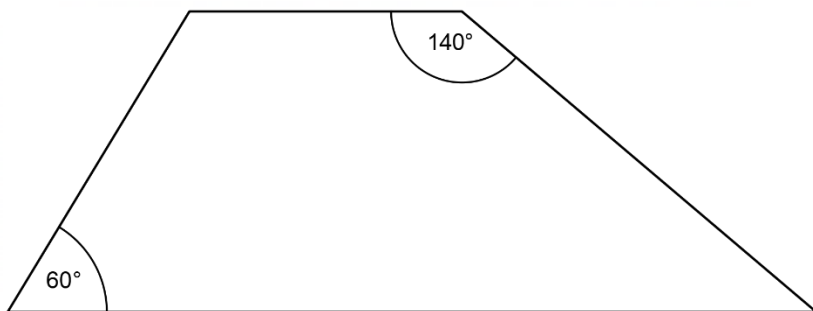
10.1 Find the size of x by first writing down an equation with a reason.

(4)



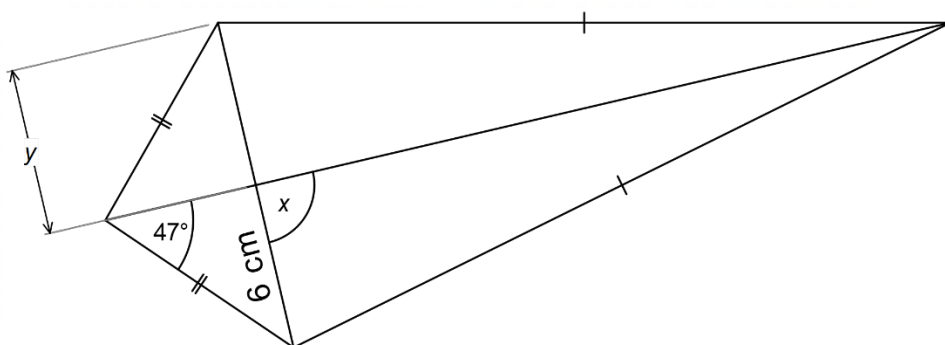
10.2 Fill in the missing angles on this **trapezium**. No reasons required.

(3)



10.3 Find the values of x and y in this **kite** giving reasons.

(4)

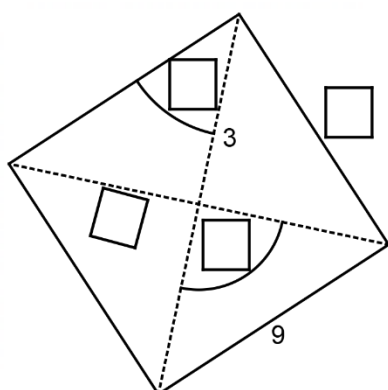


10.4 List 4 properties of a parallelogram

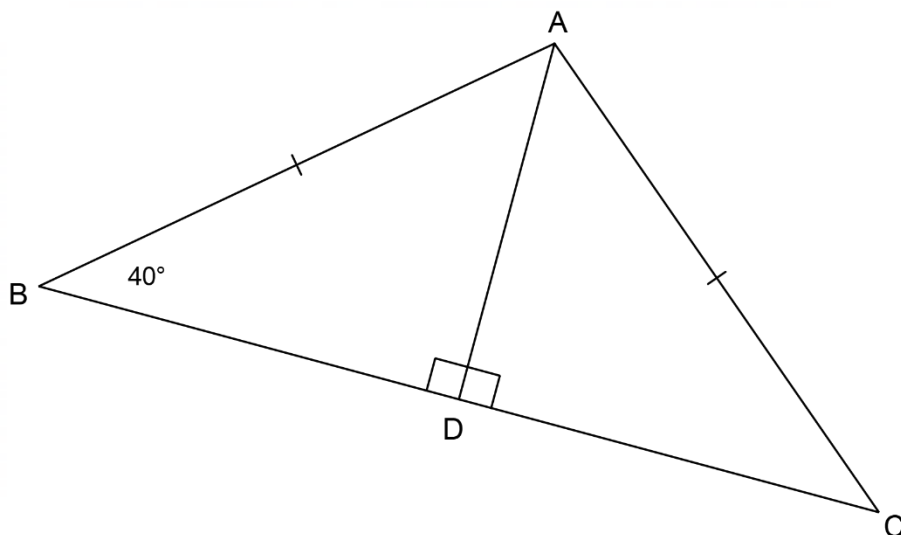
(4)

10.5 Fill in the missing sides and angles in the empty boxes in this **square**

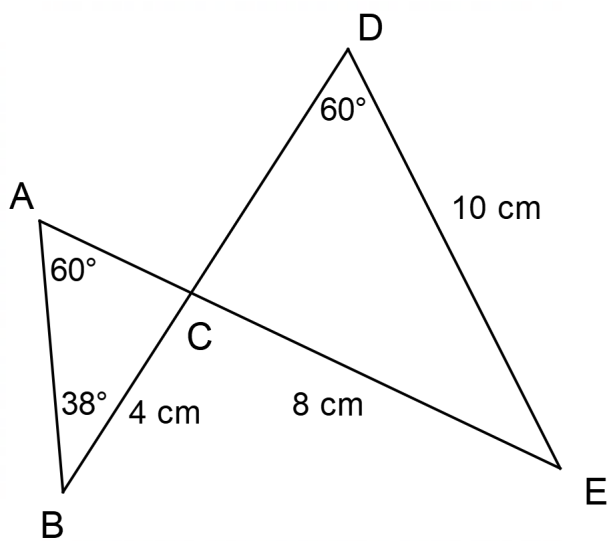
(4)



- 10.6 Determine the size of $\hat{C}$ using congruency. All reasons should be given. (4)



- 10.7 Find the length of AB by first proving the triangles similar. (6)

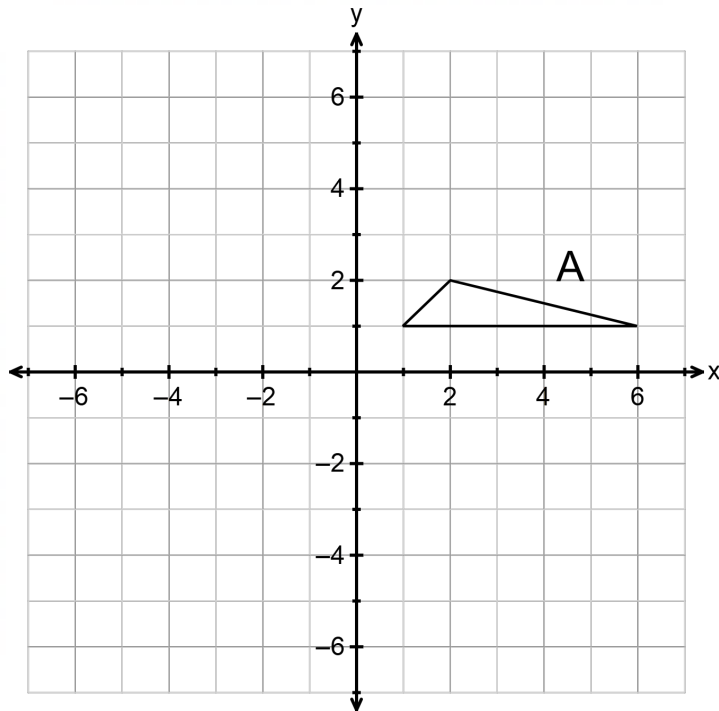


QUESTION 11 – TRANSFORMATION GEOMETRY

11.1 The shape A has been drawn. Draw **and label** its image A' using the transformation

$$(x;y) \rightarrow (x;-y)$$

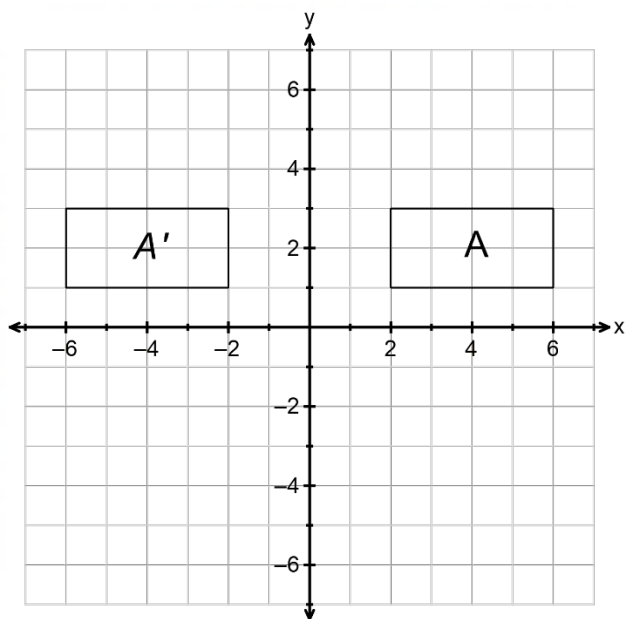
(3)



Describe the transformation in words:

(1)

11.2 The shape A and its transformation A' have been drawn.



11.2.1 Describe the transformation in words:

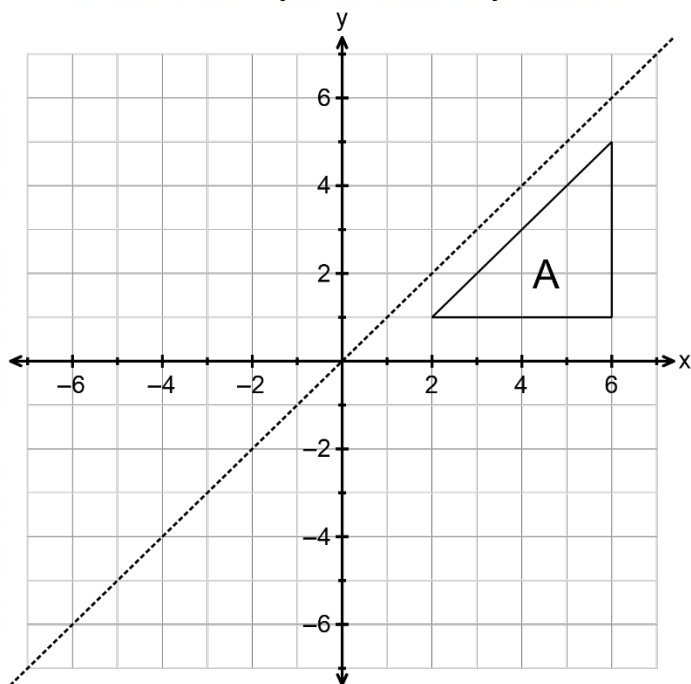
(1)

11.2.2 Complete the rule for the transformation:

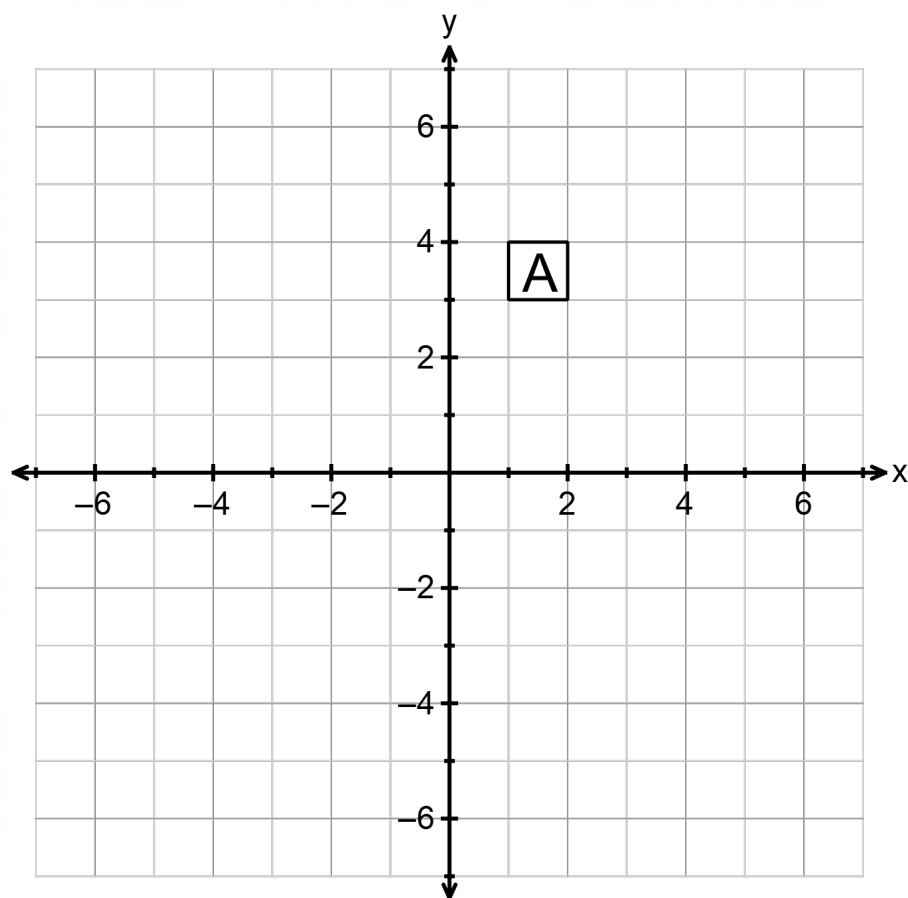
(1)

$$(x; y) \rightarrow (\quad ; \quad)$$

- 11.3 The shape A has been drawn. Draw **and label** its image A' when it is reflected in the line $y = x$. The line $y = x$ has been drawn (dashed line) to assist you. (2)



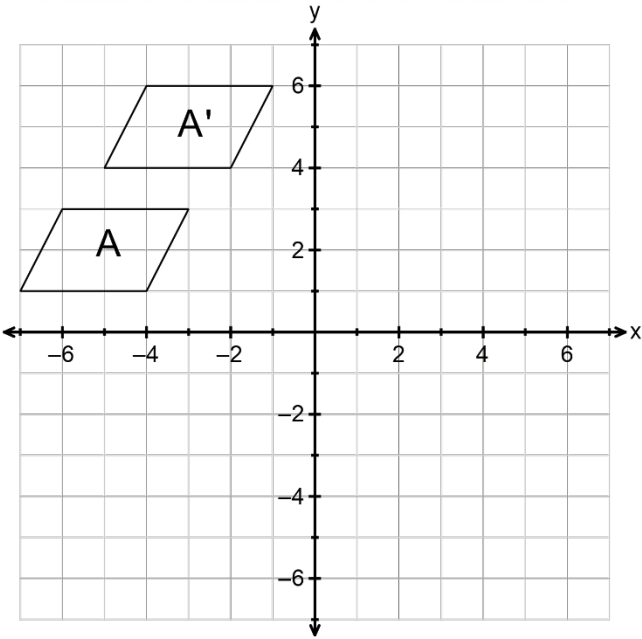
- 11.4 The shape A has been drawn. Draw **and label** its image A' when it is translated using the rule: $(x ; y) \rightarrow (x - 5 ; y + 3)$ (3)



11.5 Give the rule which has translated A to A' below by filling in the gaps in:

$(x;y) \rightarrow (\quad ; \quad)$

(2)



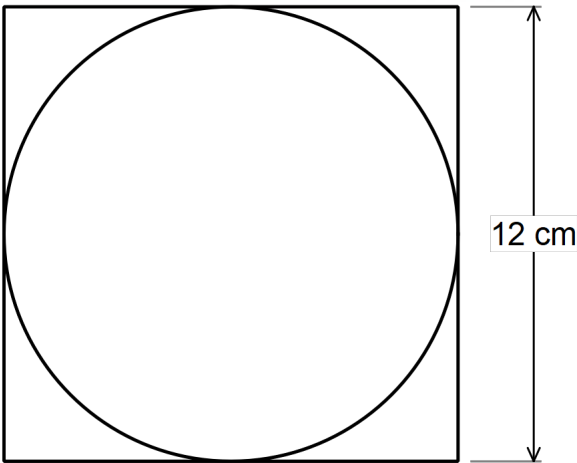
[13]

QUESTION 12 – AREA AND PERIMETER OF 2D SHAPES

In this question round all answers to 1 d.p. and give correct units

12.1 A circle fits exactly inside a square of side length 12 cm as shown.

Find the area and the perimeter of the **circle**. (4)

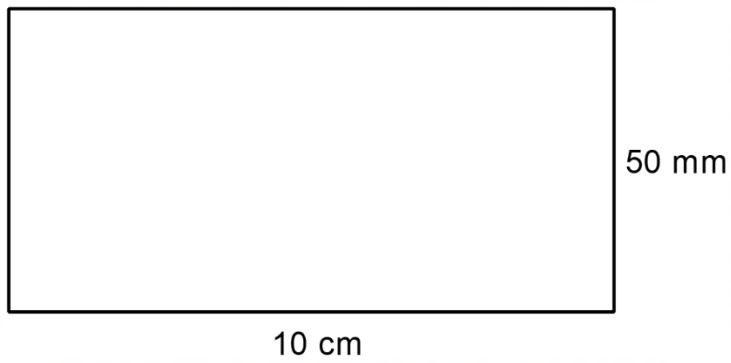


Area: _____

Perimeter: _____

12.2 Determine the area (in mm^2) and perimeter (in cm) of the rectangle

(4)

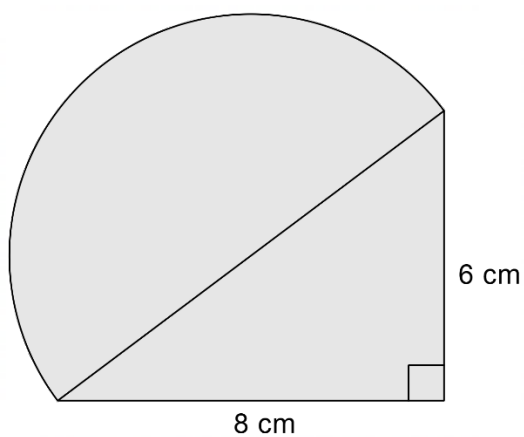


Area: _____

Perimeter: _____

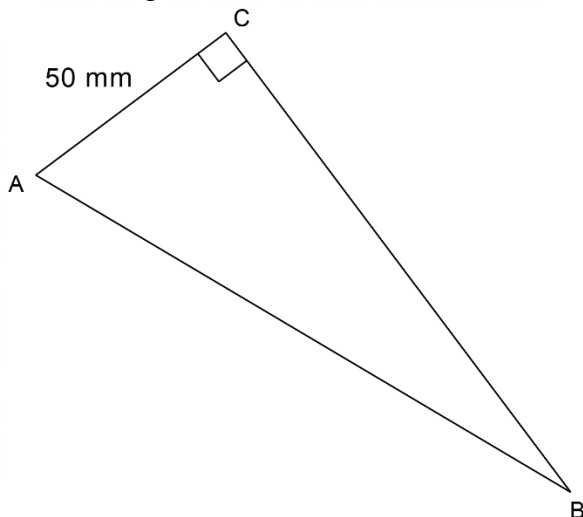
12.3 Calculate the shaded area. It is made up of a right-angled triangle and a semi-circle.

(4)



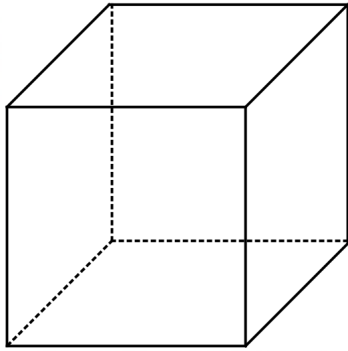
12.4 If the triangle has an area of 3000 mm^2 , then determine the length of AC in cm.

(4)



QUESTION 13 – SURFACE AREA AND VOLUME OF 3D OBJECTS

13.1 The cube shown as total surface area of 24 cm^2 .

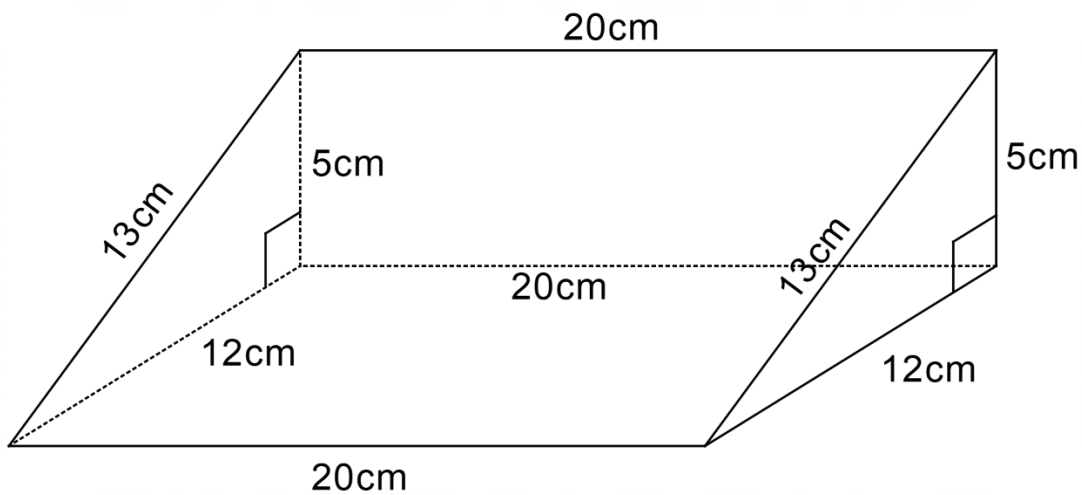


Determine the length of one of the sides of one of its faces in cm.

(4)

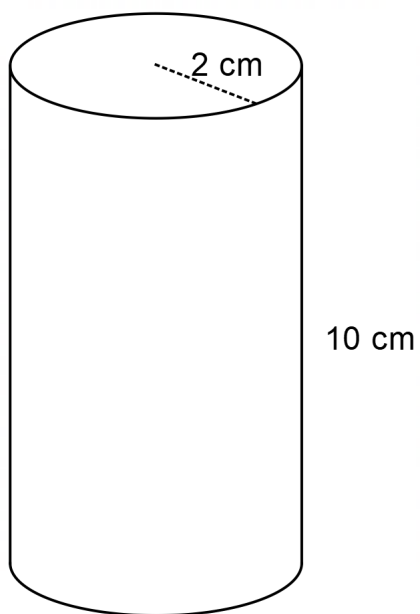
13.2 Determine the total surface area of this triangular prism. Give your answer in cm^2

(4)

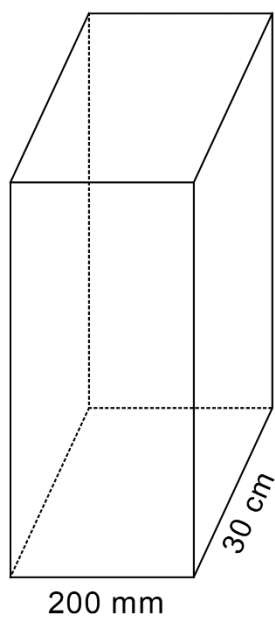


13.3 Find the volume of the cylinder below

(4)



13.4 A box of juice in the shape of a rectangular prism is to contain 24 litres ($24\,000\text{ cm}^3$). The dimensions of its base are as shown.



Determine the height in mm.

(4)