

# Year 9

## Mathematics

**Core:** Calculator allowed

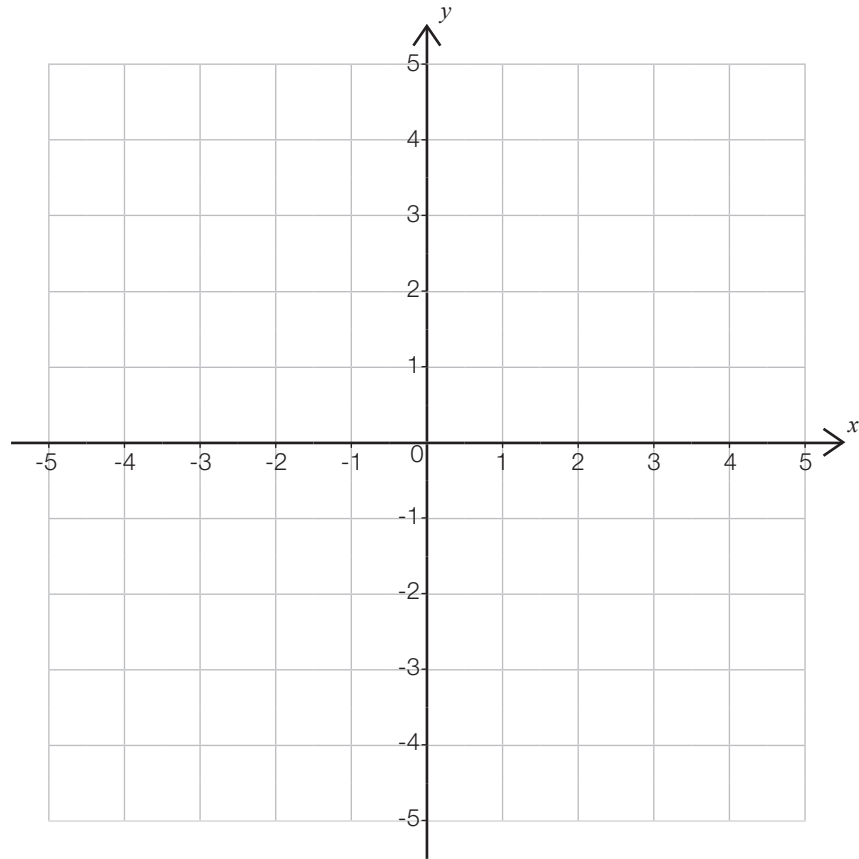
Time allowed: 45 minutes

First name						
Middle name						
Last name						
Date of birth	Day		Month		Year	
Teacher						

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For more information, please visit [www.whiterosemaths.com](http://www.whiterosemaths.com)



1



Draw the graph of  $y = x$  on the grid.

1 mark

Draw the graph of  $y = 3$  on the grid.

1 mark

Write down the coordinates of the point where the graph  $y = x$  meets the graph  $y = 3$

(   ,   )

1 mark

**2**Circle the equation that has the solution  $a = 7$ 

$$9 - 2a = 23$$

$$9 + 2a = 23$$

$$2a - 9 = 23$$

$$9 = 2a + 23$$

1 mark

Solve the equation

$$7t - 12 = 2t + 3$$

 $t =$ 

3 marks

Solve the inequality

$$3(w + 6) > 21$$

2 marks

3

Here is a 3D shape.

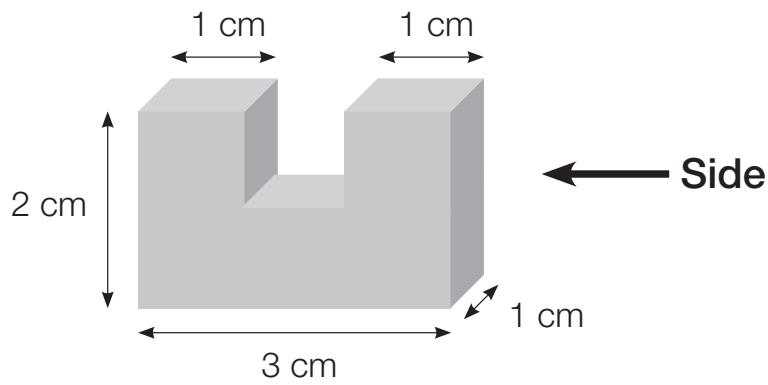
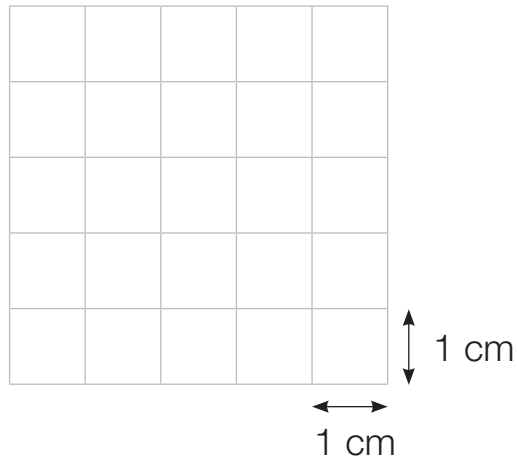


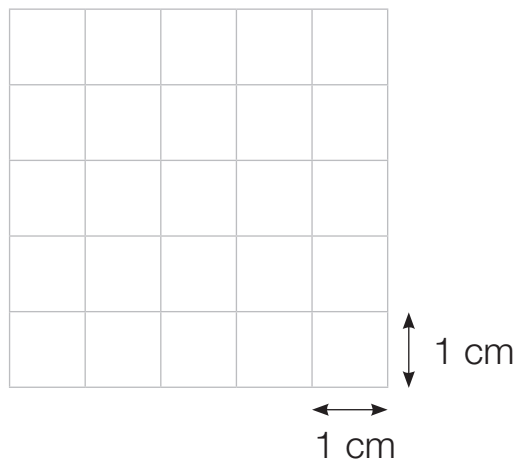
Diagram not drawn to scale

On the grid, draw the side elevation.



1 mark

On the grid, draw the plan view.



1 mark

4

Construct a perpendicular bisector of the line segment AB.

Leave your construction lines showing.



2 marks

**5**

Show that

$$5(x + 3) - 2(x - 4) \equiv 3x + 23$$

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3 marks

Expand and simplify

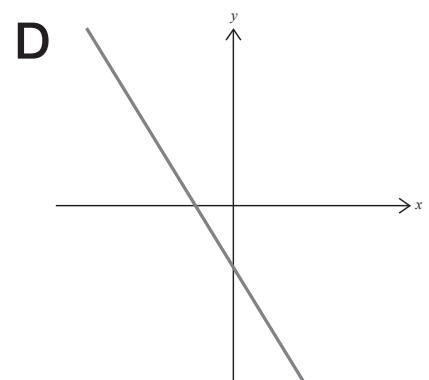
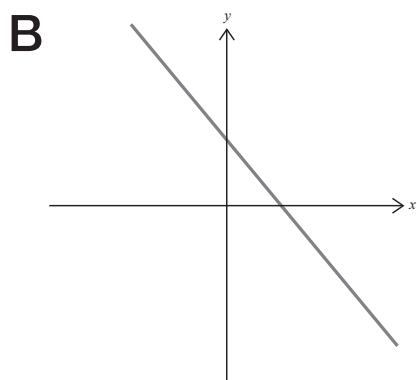
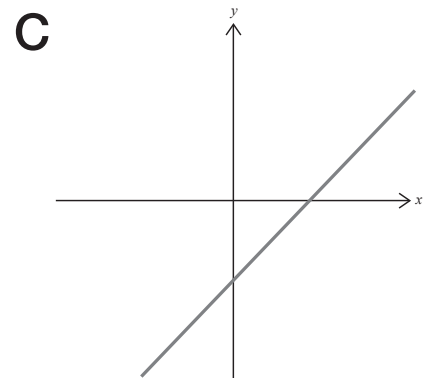
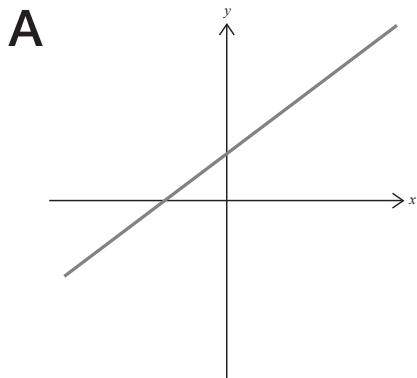
$$(x + 3)(x + 4)$$

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2 marks

**6**

Here are four straight line graphs.



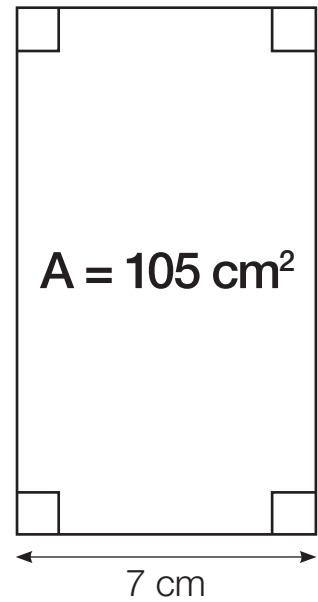
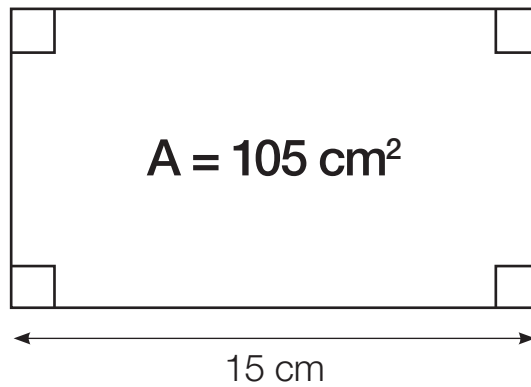
Each equation in the table represents one of the graphs.

Write the letter of each graph in the correct place in the table.

Equation	Graph
$y = 3x + 2$	
$y = 3x - 2$	
$y = -3x + 2$	
$y = -3x - 2$	

2 marks

7



The two rectangles are congruent.

Is the statement true or false? Circle your answer.

**True**

**False**

Explain your reasoning.

2 marks



8

Make  $a$  the subject of the formula.

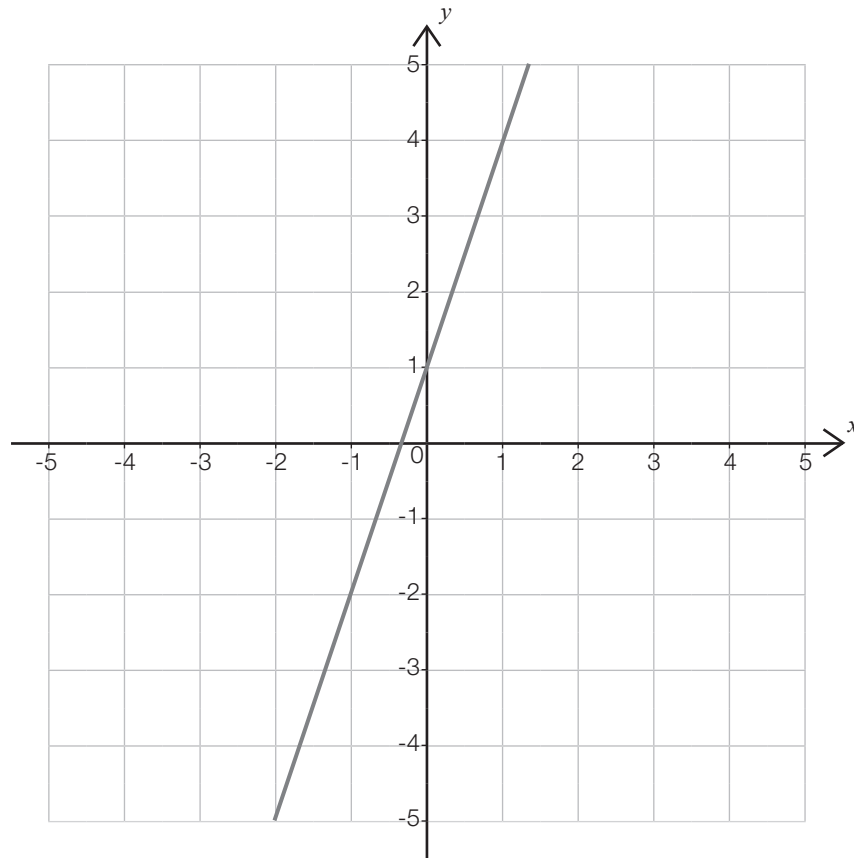
$$2a - b = c$$

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2 marks

9

Here is a linear graph.



State the coordinates of the  $y$ -intercept of the line.

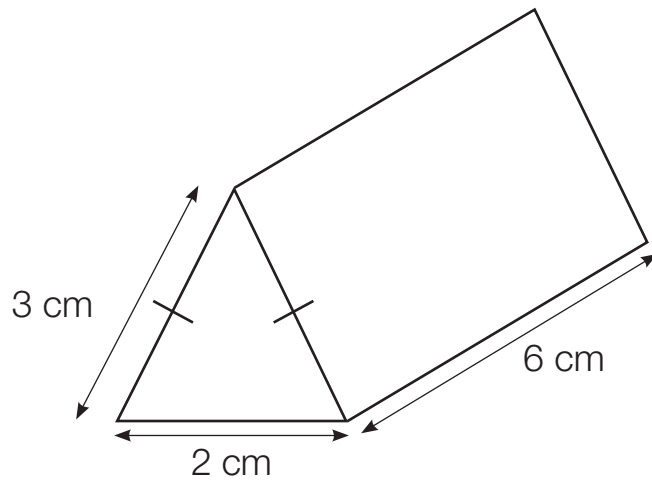
1 mark

Work out the gradient of the line.

1 mark

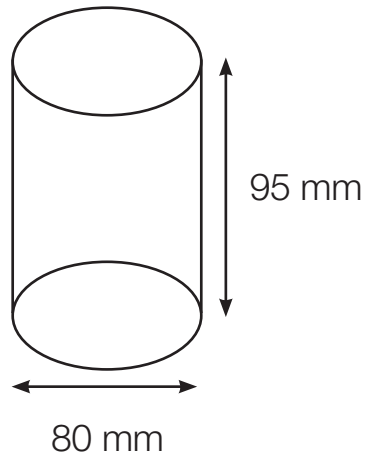
10

Construct an accurate net for the triangular prism.



3 marks

11



Sketch a net of the cylinder.

Your net does not need to be to scale.

1 mark

Work out the surface area of the cylinder.

$\text{mm}^2$

3 marks

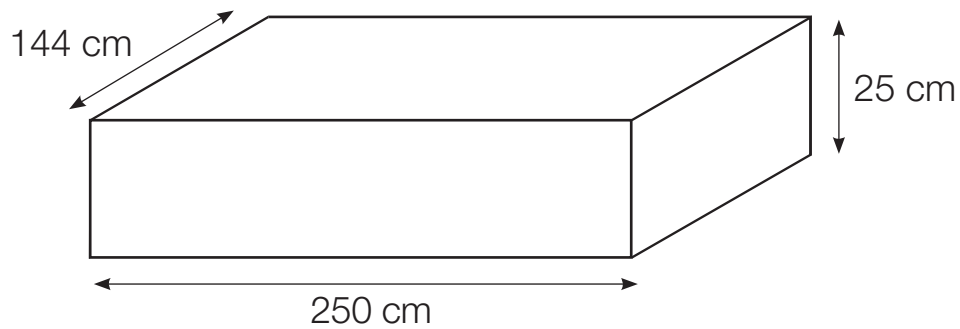
12

Sally and her friends are using buckets to fill a paddling pool with water.

A bucket holds 7.5 litres of water.

1 litre = 1000 cm<sup>3</sup>

The paddling pool is in the shape of a cuboid.



*Diagram not drawn accurately*

How many buckets of water are needed to fill the paddling pool?

\_\_\_\_\_ buckets

4 marks

13

Nijah is asked to draw the locus of the points 2 cm away from the line segment AB. Here is her answer.



Explain Nijah's mistake.

1 mark

Using the copy of the line segment AB below, draw the correct locus of the points 2 cm away from the line segment AB.



2 marks

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