Year 9

Mathematics

Core: Calculator allowed

Time allowed: 45 minutes

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

White Rose Maths

1 Which of the fractions can be written as an integer?

Circle your answer.

$$\frac{3}{5} \qquad \frac{6}{9} \qquad \frac{22}{11} \qquad \frac{12}{5}$$

2 State the order of rotational symmetry of a regular pentagon.

3 The ratio of red to blue counters in a box is 3 : 5

What fraction of the counters are blue?

Explain why there cannot be exactly 31 counters in the box.

4 Solve the equations.

$$7.2x = 19.44$$

$$x = \boxed{}$$

1 mark

$$\frac{y}{5} - \frac{2}{3} = \frac{1}{2}$$

$$y = \boxed{}$$

2 marks

Solve the inequality.

$$10 < 2z - 15$$

2 marks

5 Is the statement true or false?

Circle your answer.

> Any pair of integers shares at least one common factor.

True   False

Explain your reasoning.

1 mark

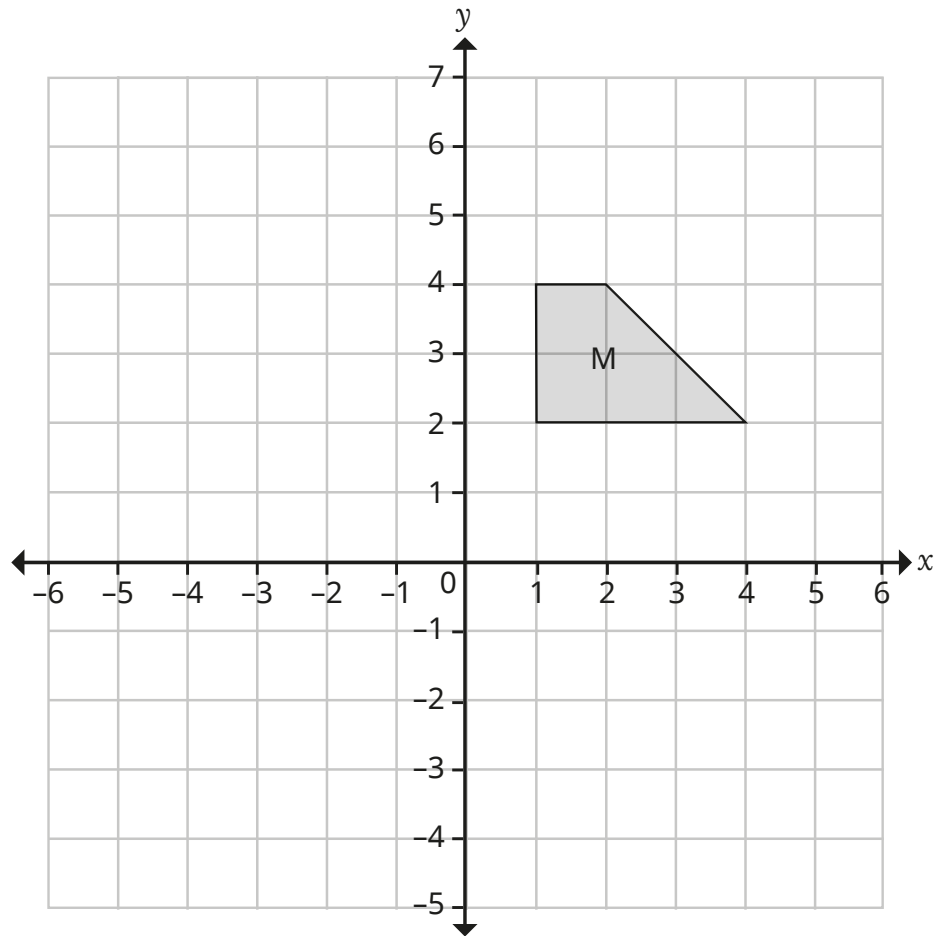**6** Describe the translation vector $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$ in words.

2 marks

7 Expand and simplify $(x + 4)(x - 7)$.

2 marks

8 Rotate shape M 90° clockwise about the point (1, 0).

Label your new shape N.

Are shapes M and N congruent?

Circle your answer.

Yes   **No**

Explain your reasoning.

9 In a sale, the prices in a shop are reduced by 28%.

The normal price of a coat is £250

Work out the sale price of the coat.

£ [   ]

2 marks

The sale price of a handbag is £108
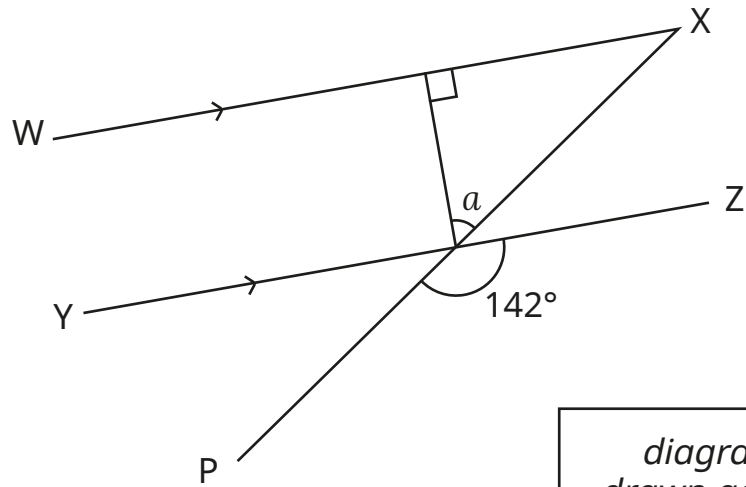
Work out the normal price of the handbag.

£ [   ]

2 marks

10 WX and YZ are parallel lines.

XP is a straight line.

diagram not
drawn accurately
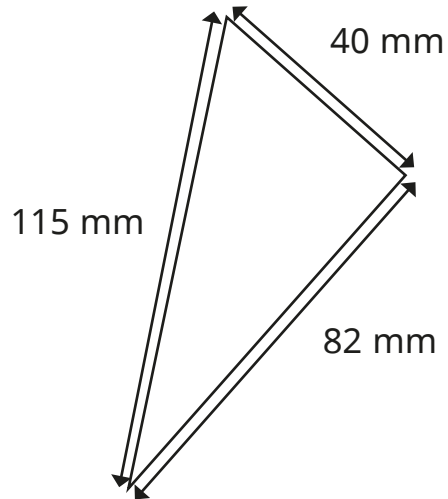
Work out the size of angle a.

Give a reason for each stage of your working.

$$\boxed{}\ °$$

3 marks

© White Rose Maths 2021
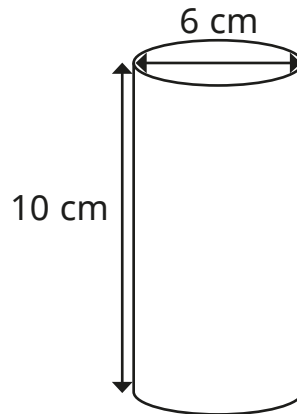
11 Here is a triangle.

40 mm

115 mm

82 mm

Make an accurate drawing of the triangle in the space below.

2 marks

12 Find the volume of the cylinder.

State units with your answer.

6 cm

10 cm

3 marks

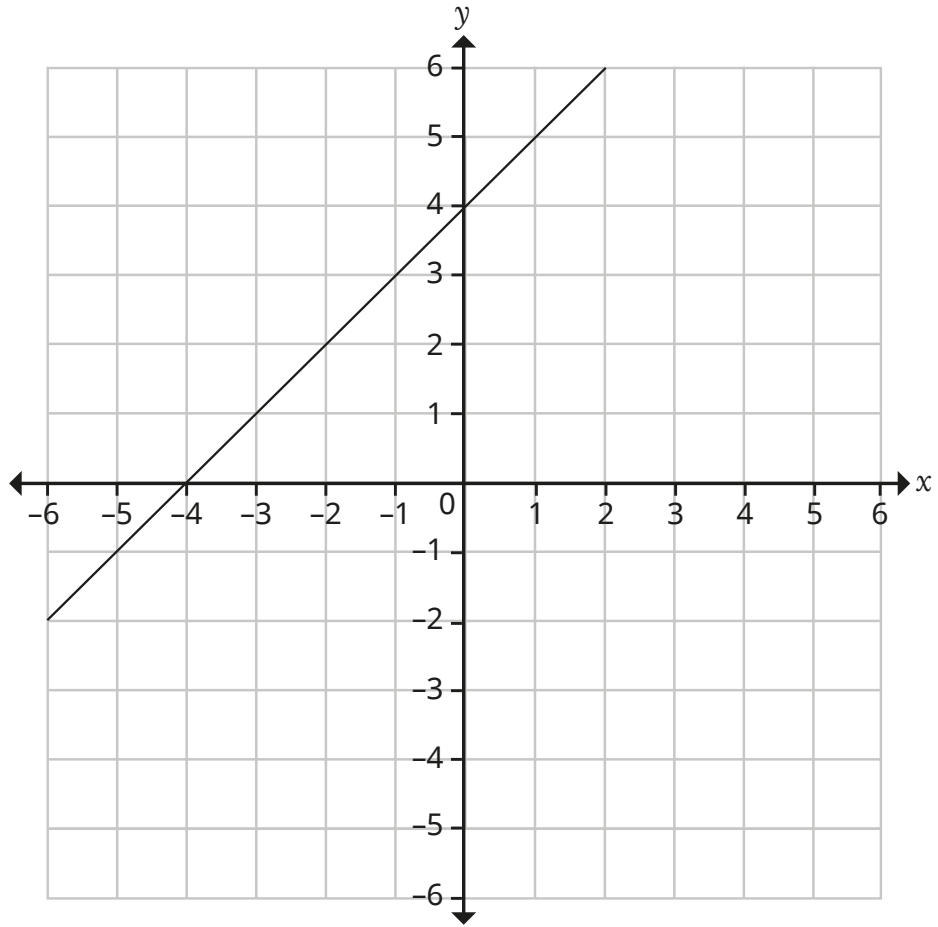**13** A savings account pays 3% compound interest per year.

Dr Lee invests £6000

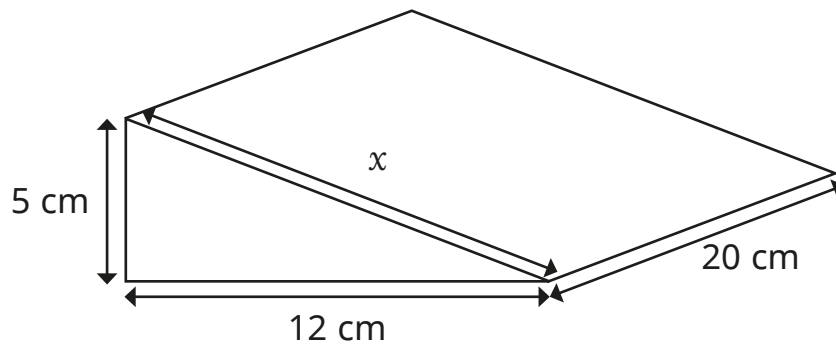Work out the value of Dr Lee's investment after 5 years.

£

3 marks

Find the equation of the line.

2 marks

15 Here is a triangular prism.

Work out the length of the side marked x.

	cm

Work out the surface area of the triangular prism.

	cm²

END OF TEST

BLANK PAGE

Please do not write on this page.