Mock Grade 5

Maths Booklet 1

Paper 1H
Non-Calculator

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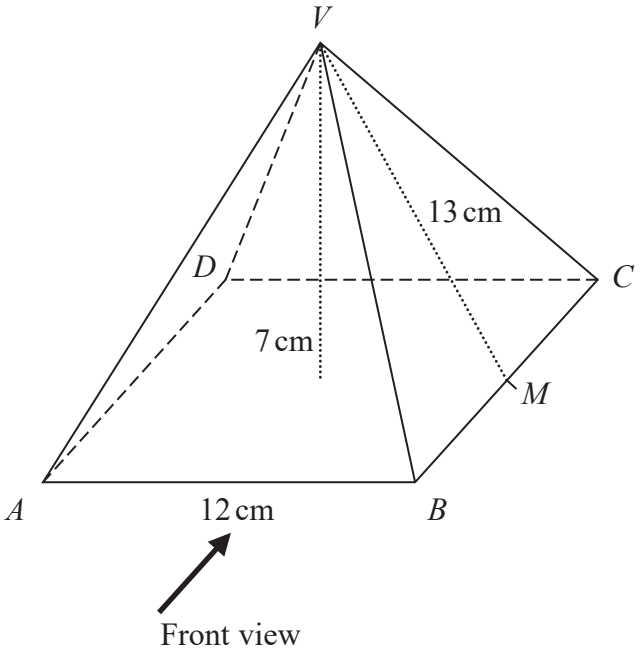
1 Here is a solid square-based pyramid, *VABCD*.



The base of the pyramid is a square of side 12 cm.
The height of the pyramid is 7 cm.
M is the midpoint of *BC* and *VM* = 13 cm.

(a) Draw an accurate front elevation of the pyramid from the direction of the arrow.

(2)

(b) Work out the total surface area of the pyramid.

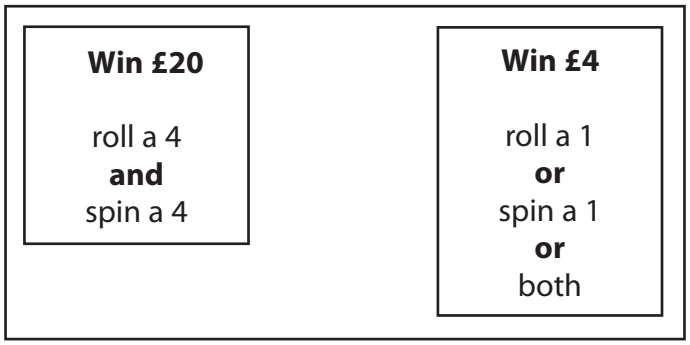
.....

(4)

(Total for Question 1 is 6 marks)

2 David has designed a game.
He uses a fair 6-sided dice and a fair 5-sided spinner.
The dice is numbered 1 to 6
The spinner is numbered 1 to 5

Each player rolls the dice once and spins the spinner once.
A player can win £20 or win £4



David expects **60 people** will play his game.
Each person will pay David £3 to play the game.

(a) Work out how much profit David can expect to make.

£.....

(4)

(b) Give a reason why David's actual profit may be different to the profit he expects to make.

.....

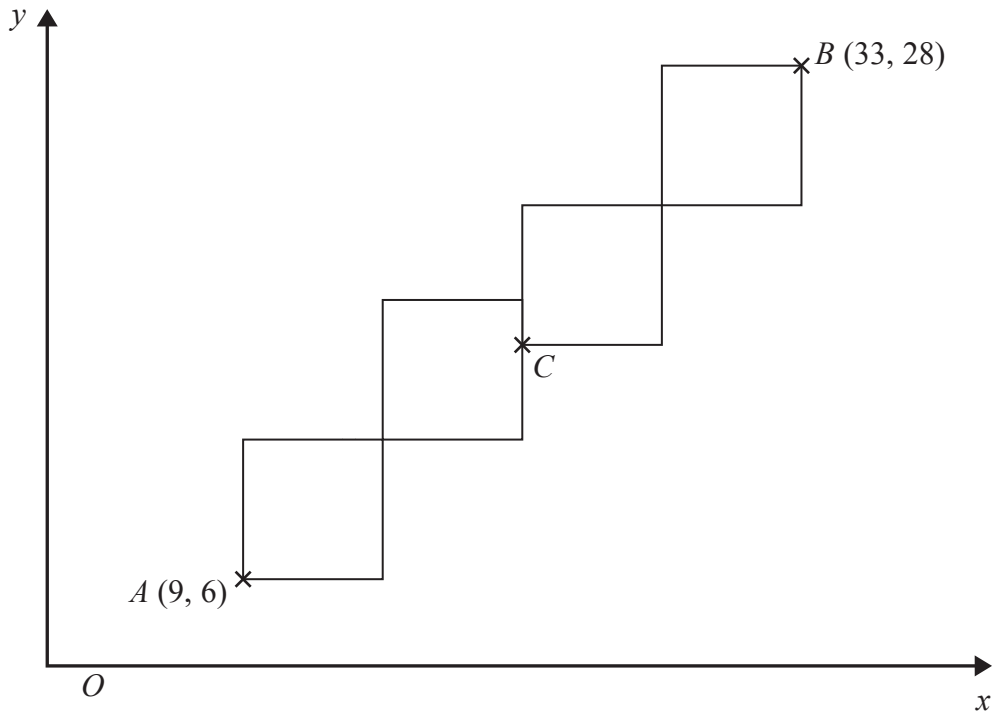
.....

(1)

(Total for Question 2 is 5 marks)

3 A pattern is made from four identical squares.

The sides of the squares are parallel to the axes.



Point A has coordinates (9, 6)
Point B has coordinates (33, 28)
Point C is marked on the diagram.

Work out the coordinates of C.

(..... , ...)

(Total for Question 3 is 5 marks)

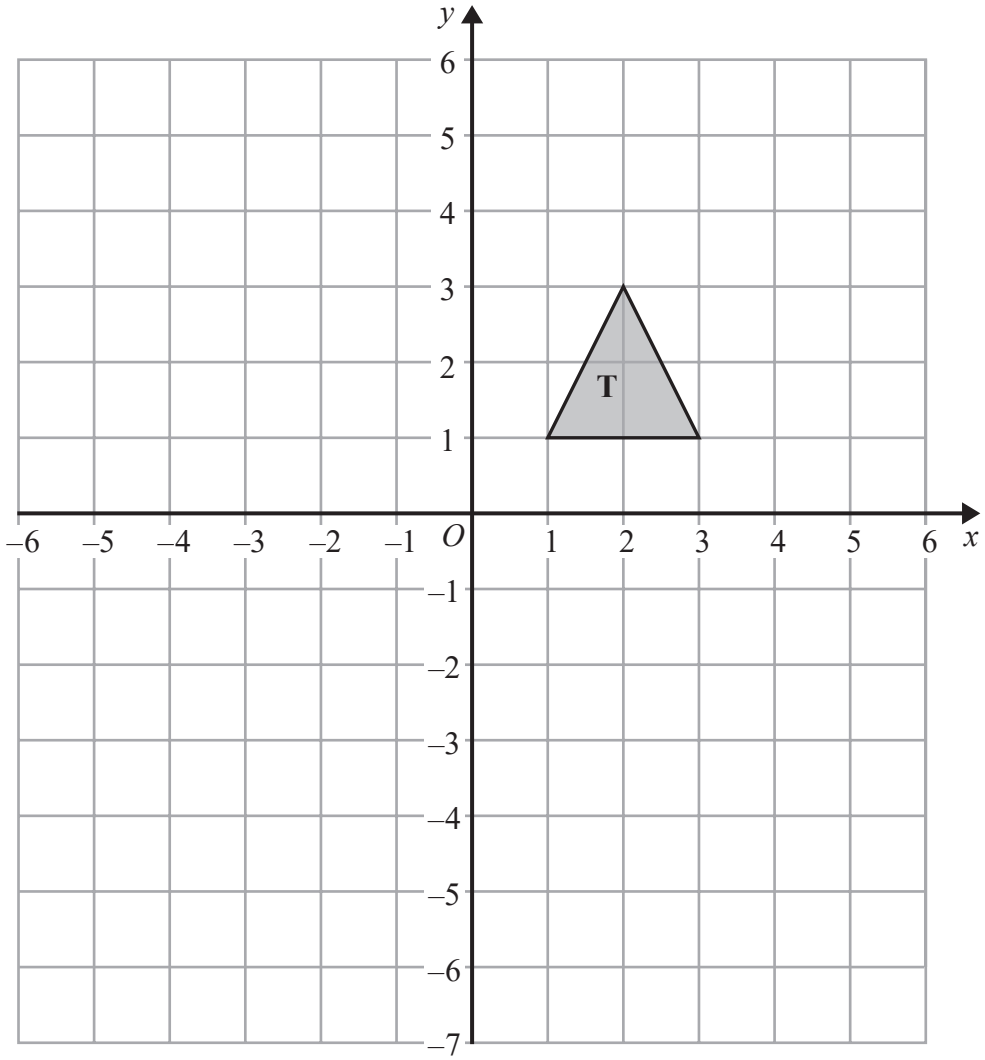
4 The perimeter of a right-angled triangle is 160 cm.
The lengths of its sides are in the ratio 7 : 12 : 13

Work out the area of the triangle.

.....cm^2

(Total for Question 4 is 4 marks)

5



Shape **T** is reflected in the line $x = 0$ to give shape **R**.
Shape **R** is reflected in the line $y = -1$ to give shape **S**.

Describe the **single** transformation that will map shape **T** to shape **S**.

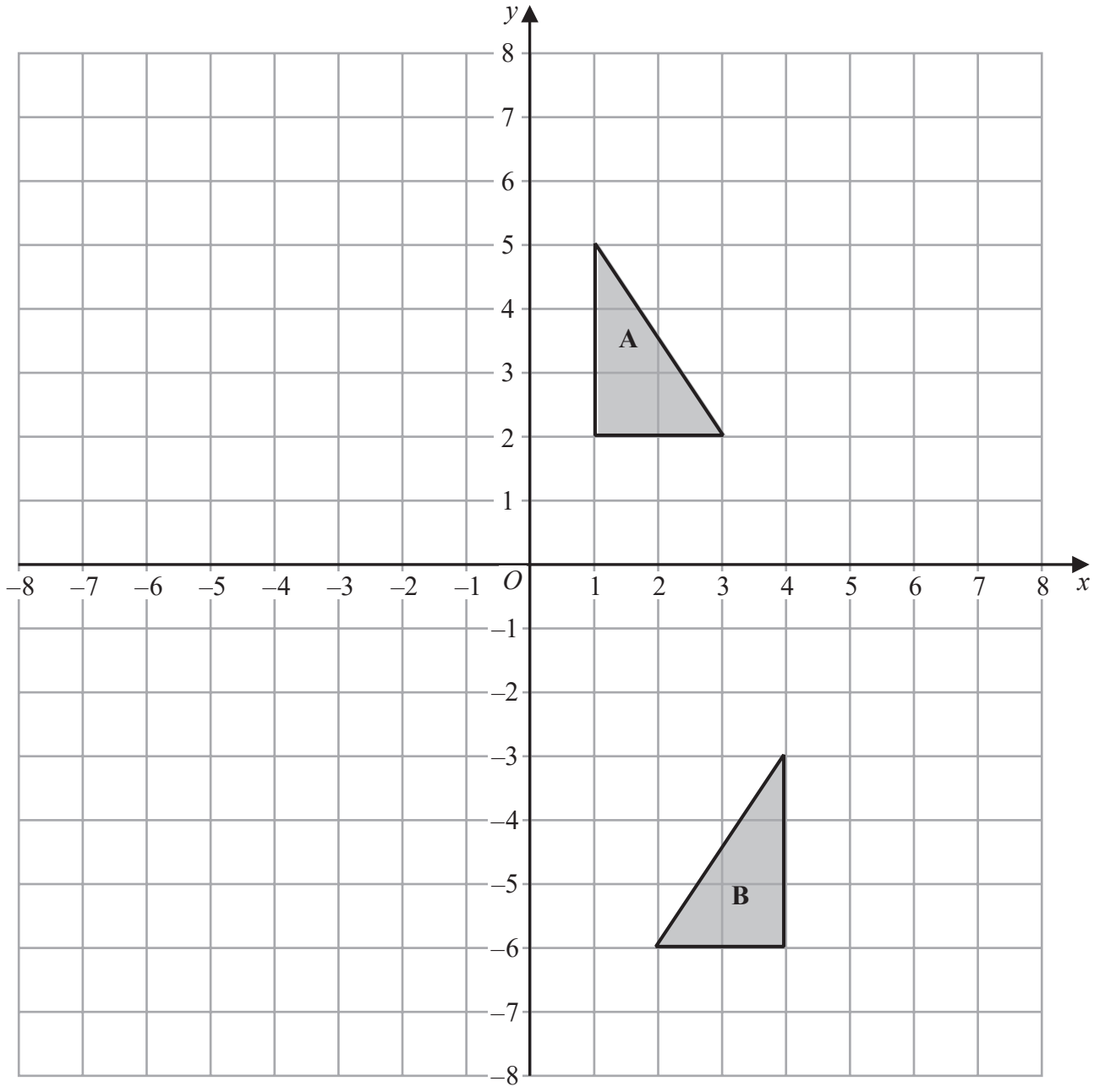
.....

.....

.....

(Total for Question 5 is 2 marks)

6



Shape **A** can be transformed to shape **B** by a reflection in the y-axis followed by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$

Find the value of c and the value of d.

$c =$ .....

$d =$ .....

(Total for Question 6 is 3 marks)

7 A shop sells packs of black pens, packs of red pens and packs of green pens.

There are

3 pens in each pack of black pens
8 pens in each pack of red pens
11 pens in each pack of green pens

On Monday,

number of packs of black pens sold : number of packs of red pens sold : number of packs of green pens sold = 2 : 5 : 9

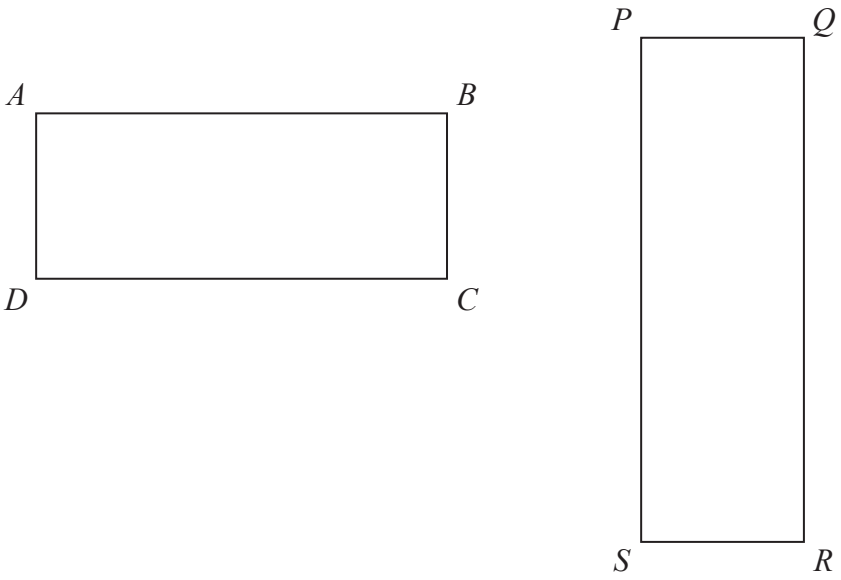
A total of 290 pens were sold.

Work out the number of green pens sold.

.....

(Total for Question 7 is 4 marks)

8 Here are two rectangles.



$QR = 12\,\text{cm}$
$BC = PQ$

The perimeter of $ABCD$ is 32 cm
The area of $PQRS$ is $84\,\text{cm}^2$

Find the length of AB.

..... cm

(Total for Question 8 is 4 marks)