

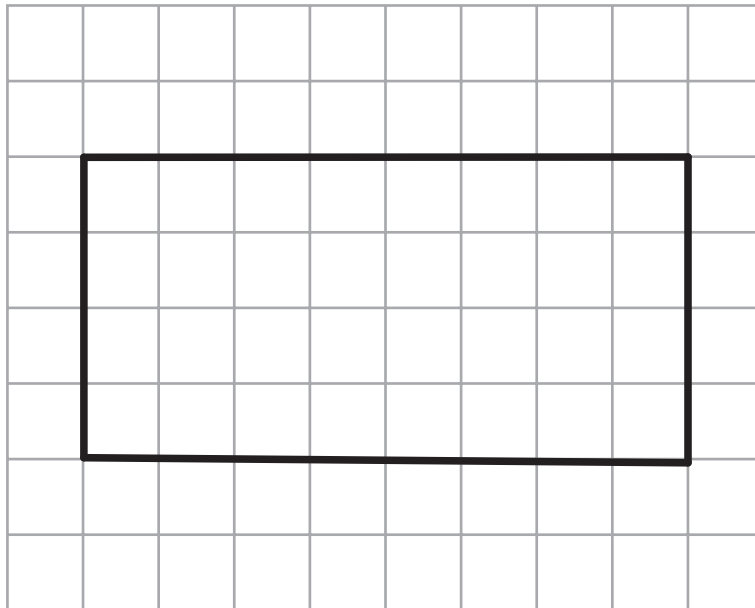
1. The length of a rectangle is twice as long as the width of the rectangle.
The area of the rectangle is 32 cm^2 .

Draw the rectangle on the centimetre grid.

$$\text{area} = \text{length} \times \text{width}$$

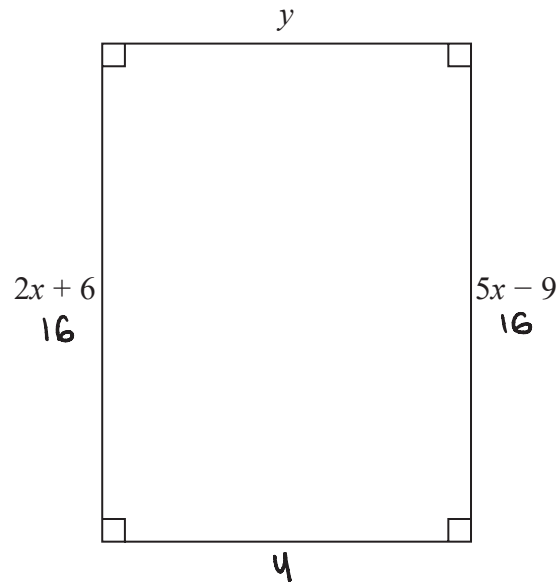
$$4 \times 8 = 32$$

1 32
2 16
4 8



(Total for Question is 2 marks)

2. Here is a rectangle.



All measurements are in centimetres.

The area of the rectangle is 48 cm^2 .

Show that $y = 3$

$$\begin{aligned} 2x + 6 &= 5x - 9 \quad \checkmark \\ -2x \quad -2x & \\ 6 &= 3x - 9 \\ +9 \quad +9 & \\ 15 &= 3x \\ \div 3 \quad \div 3 & \\ 5 &= x \quad \checkmark \end{aligned}$$

$$\begin{aligned} 2(5) + 6 & \\ = 10 + 6 & \\ = 16 & \end{aligned}$$

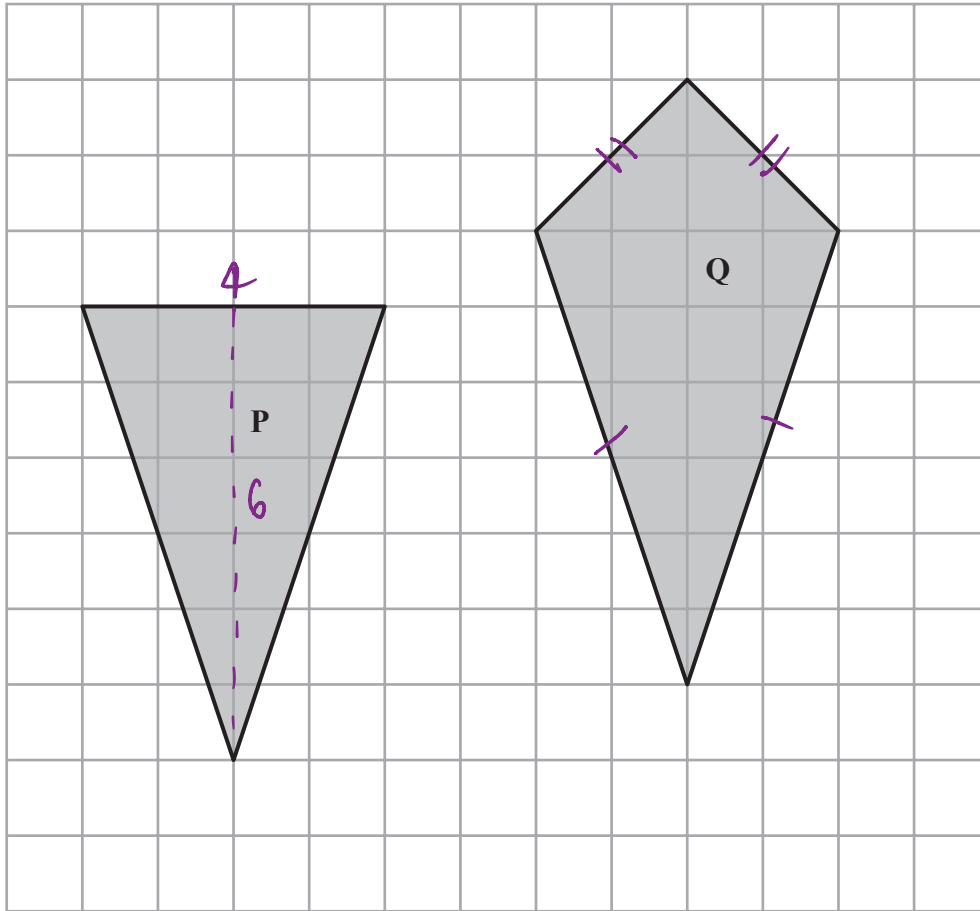
$$\begin{aligned} 5(5) - 9 & \\ = 25 - 9 & \\ = 16 \quad \checkmark & \end{aligned}$$

Area of rectangle = $b \times h$

$$\begin{aligned} 48 &= 4 \times 16 \\ \div 16 \quad \div 16 & \\ 3 &= 4 \quad \checkmark \end{aligned}$$

(Total for Question is 4 marks)

3. The diagram shows two shapes drawn on a centimetre grid.



- (a) Find the area of shape P.

$$\text{area of triangle} = \frac{1}{2}bh$$

$$\frac{1}{2} \times 4 \times 6 = 12$$

$$\underline{12 \text{ cm}^2}$$

(2)

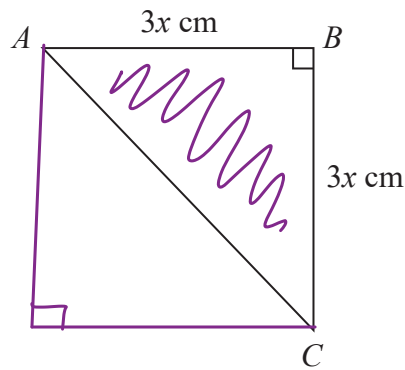
- (b) Write down the mathematical name of quadrilateral Q.

Kite

(1)

(Total for Question is 3 marks)

4. ABC is an isosceles right-angled triangle.



$$\begin{aligned}\Delta \text{ area} &= \frac{1}{2} \square \text{ area} \\ &= \frac{1}{2} \times AB \times BC \\ &= \frac{1}{2} \times 3x \times 3x\end{aligned}$$

The area of the triangle is 162 cm^2

Work out the value of x .

Area of Δ - setting up an equation in x

$$3x \times 3x \times \frac{1}{2} = 162 \quad (1)$$

$$\frac{9}{2} x^2 = 162$$

$$x^2 = \frac{162 \times 2}{9} \quad (1)$$

$$x = \sqrt{36}$$

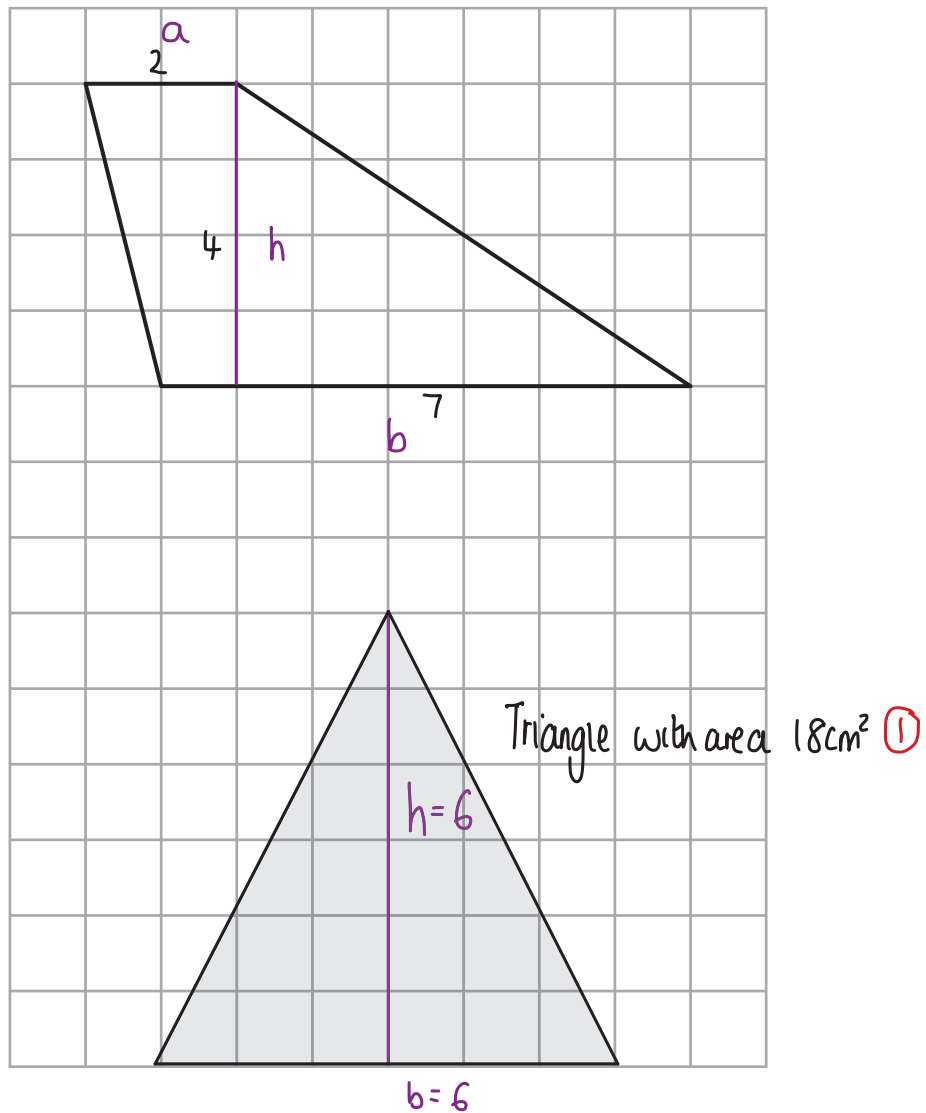
$$x = 6$$

x must be positive
as you can't have a negative length

$$x = \underline{6} \quad (1)$$

(Total for Question is 3 marks)

5. Here is a **trapezium** drawn on a centimetre grid.



On the grid, draw a **triangle equal in area to this trapezium**.

$$\begin{aligned}
 \text{Area of Trapezium} &= \frac{1}{2} (a+b) \times h \quad \leftarrow \begin{array}{l} \text{sum of parallel sides} \\ \text{height between them} \end{array} \\
 &= \frac{1}{2} (2+7) \times 4 \\
 &= 18 \text{ cm}^2 \quad \text{①}
 \end{aligned}$$

$$\begin{aligned}
 \text{Area of Triangle} &= 18 = \frac{1}{2} bh \\
 bh &= 36
 \end{aligned}$$

The base and height must multiply to get 36
= a factor pair of 36

$$\begin{array}{l}
 9 \text{ and } 4 \\
 \text{or } 6 \text{ and } 6 \quad \text{If } b=6 \text{ and } h=6
 \end{array}$$

(Total for Question is 2 marks)