

Areas of triangles

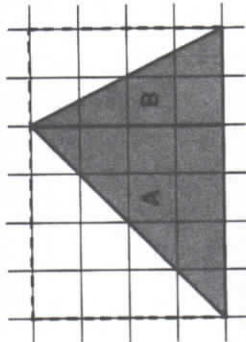
The orange triangle is not right angled.

We can divide it into two right-angled triangles A and B.

$$\text{Area of triangle A} = \frac{1}{2} \text{ of } 16 \text{ cm}^2 = 8 \text{ cm}^2$$

$$\text{Area of triangle B} = \frac{1}{2} \text{ of } 8 \text{ cm}^2 = 4 \text{ cm}^2$$

$$\text{Area of orange triangle} = 12 \text{ cm}^2$$



Find the area of each orange triangle by dividing it into two right-angled triangles.

1 Area of triangle P = $\frac{1}{2}$ of $6 \text{ cm}^2 = 3 \text{ cm}^2$

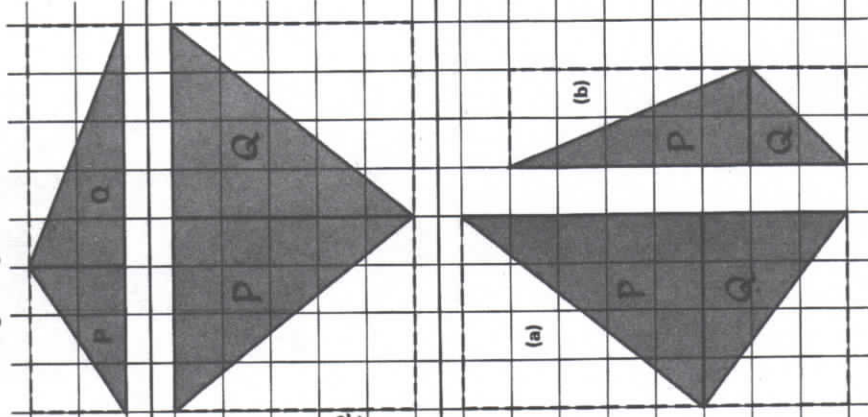
$$\text{Area of triangle Q} = \frac{1}{2} \text{ of } 10 \text{ cm}^2 = 5 \text{ cm}^2$$

Area of orange triangle = 8 cm²

2 Area of triangle P = $\frac{1}{2}$ of $20 \text{ cm}^2 = 10 \text{ cm}^2$
 Area of triangle Q = $\frac{1}{2}$ of $20 \text{ cm}^2 = 10 \text{ cm}^2$
 Area of orange triangle = 20 cm²

3 (a) Area of triangle P = $\frac{1}{2}$ of $20 \text{ cm}^2 = 10 \text{ cm}^2$
 Area of triangle Q = $\frac{1}{2}$ of $12 \text{ cm}^2 = 6 \text{ cm}^2$
 Area of orange triangle = 16 cm²

(b) Area of triangle P = $\frac{1}{2}$ of $10 \text{ cm}^2 = 5 \text{ cm}^2$
 Area of triangle Q = $\frac{1}{2}$ of $4 \text{ cm}^2 = 2 \text{ cm}^2$
 Area of orange triangle = 7 cm²



Areas of shapes

Draw lines to divide each shape into rectangles and right-angled triangles.
 Find the area of each whole shape in square centimetres.

1 Area of triangle A = $\frac{1}{2}$ of $6 \text{ cm}^2 = 3 \text{ cm}^2$
 Area of triangle B = $\frac{1}{2}$ of $6 \text{ cm}^2 = 3 \text{ cm}^2$
 Area of rectangle C = 6 cm^2
 Area of whole shape = 12 cm²

2 Area of triangle A = $\frac{1}{2}$ of $20 \text{ cm}^2 = 10 \text{ cm}^2$
 Area of square B = 4 cm^2
 Area of triangle C = $\frac{1}{2}$ of $4 \text{ cm}^2 = 2 \text{ cm}^2$
 Area of whole shape = 16 cm²

3 Other divisions are possible.

Area of rectangle A = 12 cm^2
 Area of triangle B = $\frac{1}{2}$ of $10 \text{ cm}^2 = 5 \text{ cm}^2$
 Area of triangle C = $\frac{1}{2}$ of $10 \text{ cm}^2 = 5 \text{ cm}^2$
 Area of whole shape = 22 cm²

Other divisions are possible.

4 (a) Area of triangle A = $\frac{1}{2}$ of $4 \text{ cm}^2 = 2 \text{ cm}^2$
 Area of rectangle B = 2 cm^2
 Area of triangle C = $\frac{1}{2}$ of $2 \text{ cm}^2 = 1 \text{ cm}^2$
 Area of square D = 1 cm^2
 Area of rectangle E = 2 cm^2
 Area of whole shape = 8 cm²

(b) Area of triangle A = $\frac{1}{2}$ of $2 \text{ cm}^2 = 1 \text{ cm}^2$
 Area of triangle B = $\frac{1}{2}$ of $2 \text{ cm}^2 = 1 \text{ cm}^2$
 Area of square C = 4 cm^2
 Area of triangles D, E, F, G = $4 \times 1 \text{ cm}^2 = 4 \text{ cm}^2$
 Area of whole shape = 10 cm²

Other divisions are possible.

