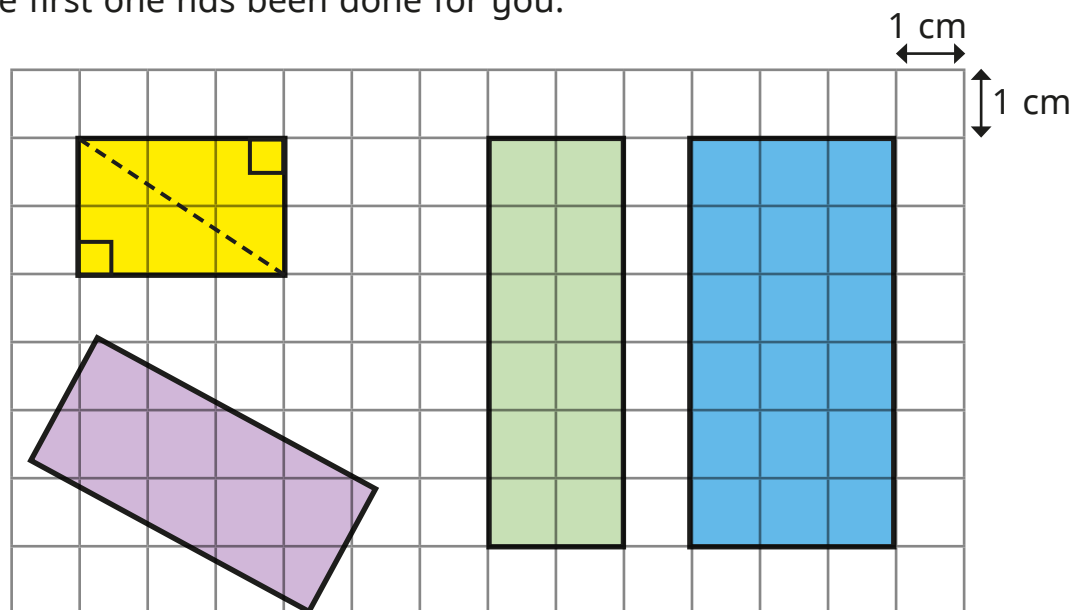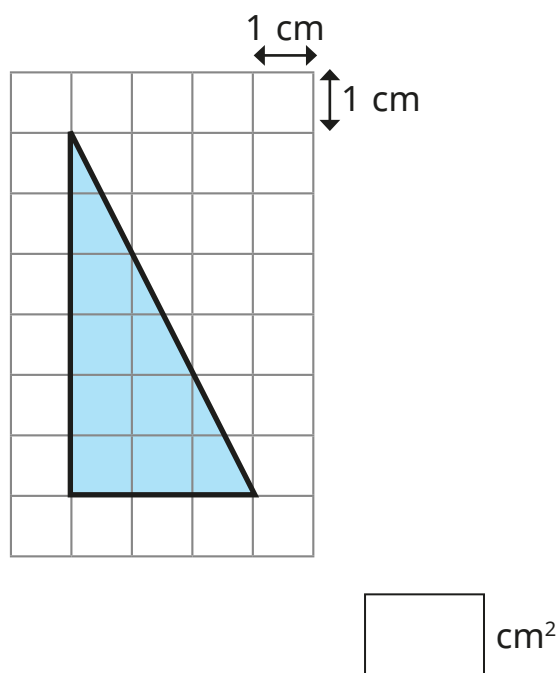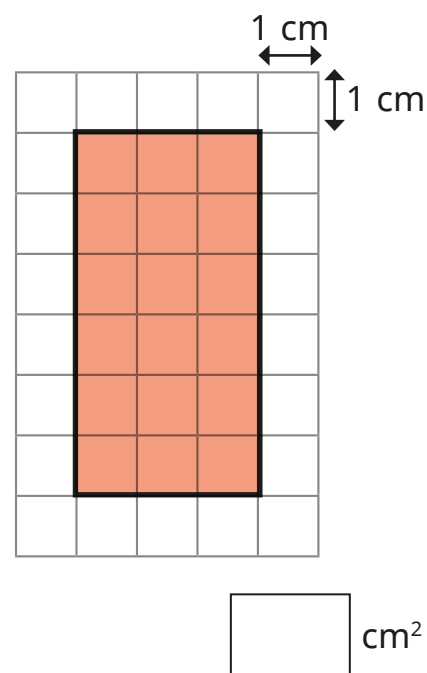# Area of a right-angled triangle

1 Divide each rectangle into two right-angled triangles. The first one has been done for you.

1 cm

1 cm

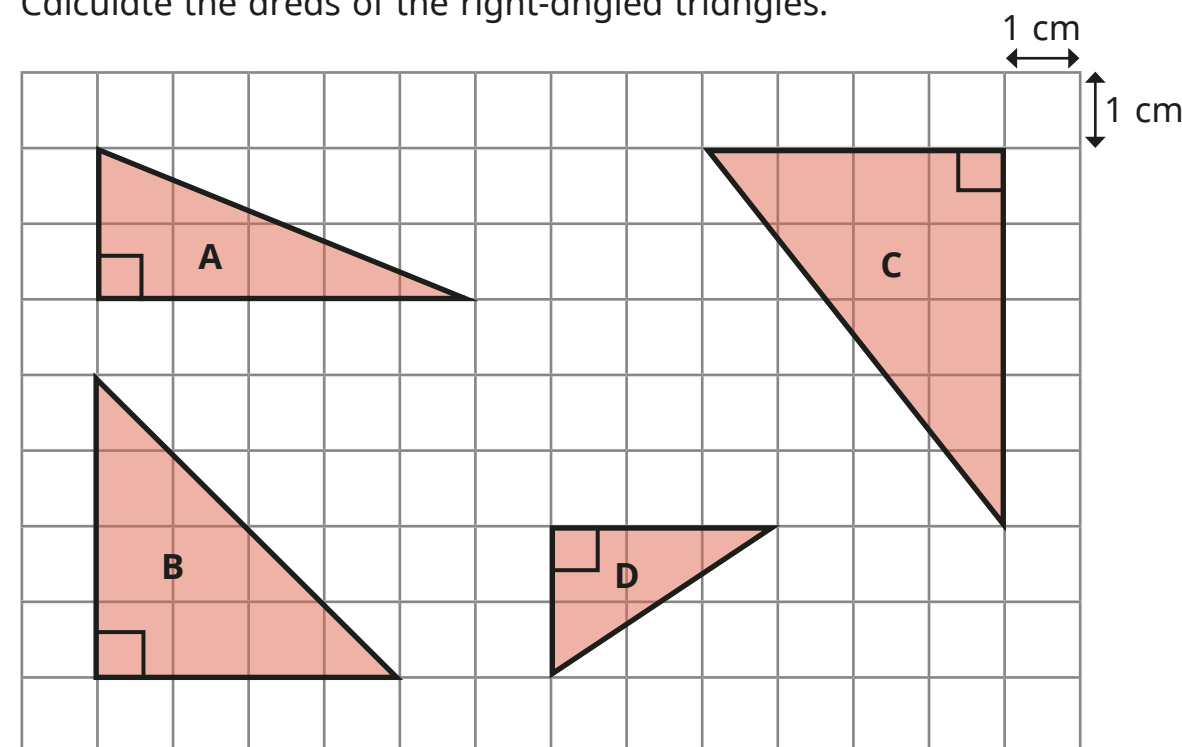**2** **a)** Calculate the areas of the rectangle and the triangle.

1 cm   1 cm

1 cm   1 cm

☐ cm²   ☐ cm²

b) Explain how you worked out the area of the right-angled triangle.

3 Calculate the areas of the right-angled triangles.

1 cm

1 cm

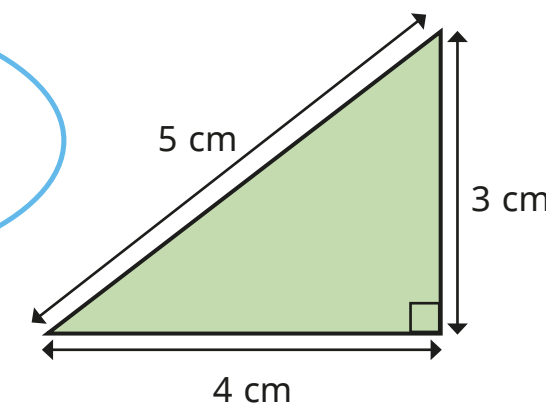triangle A = ☐ cm²   triangle C = ☐ cm²

triangle B = ☐ cm²   triangle D = ☐ cm²

4 Whitney uses the formula to calculate the area of the triangle.

$$\text{area} = \frac{1}{2} \times \text{base} \times \text{perpendicular height}$$

The area is $\frac{1}{2} \times 4 \times 3$
I can ignore the 5 because it isn't the base or the perpendicular height.
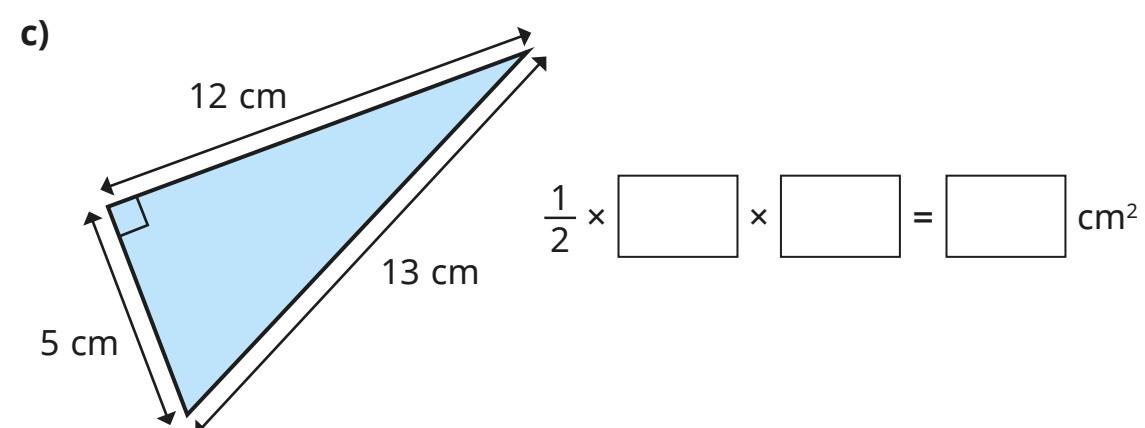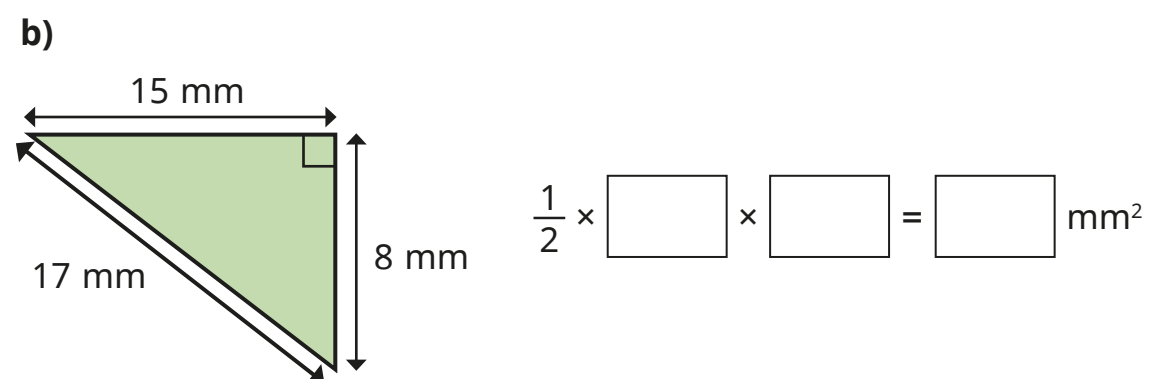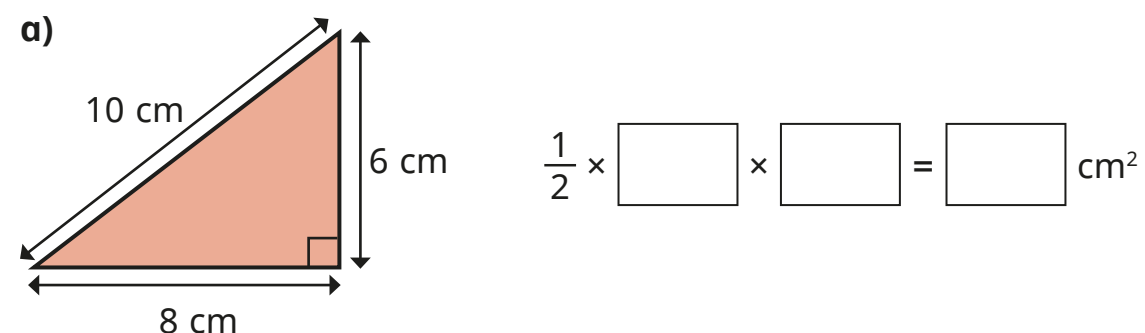
5 cm   3 cm

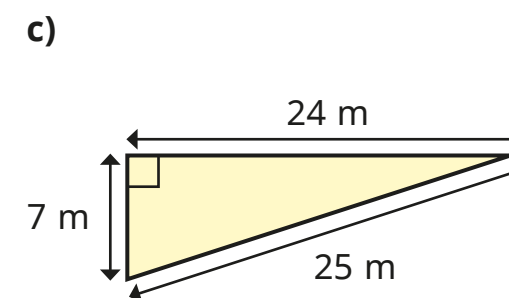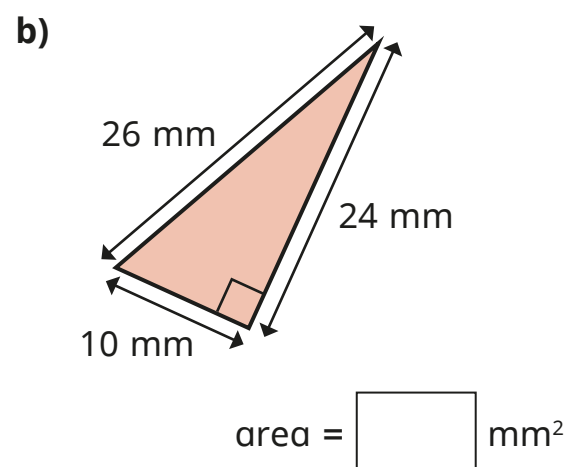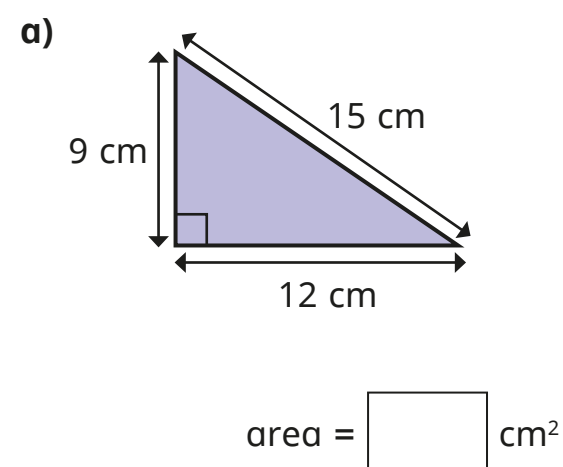4 cm

Do you agree with Whitney? _____

Talk about it with a partner.

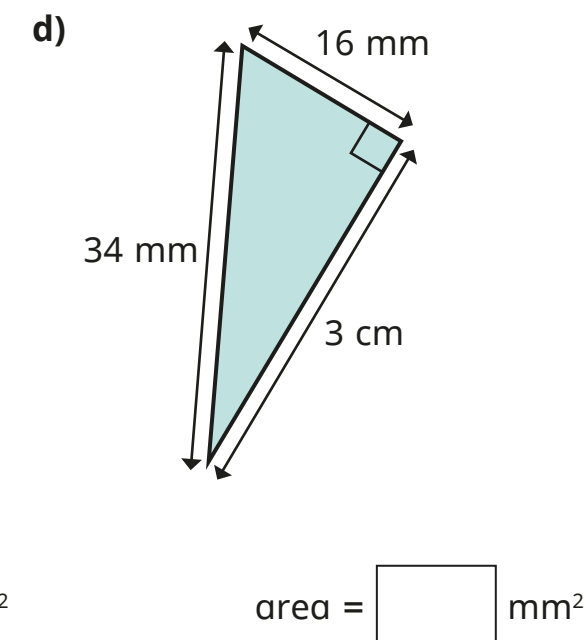**5** Insert the correct numbers into the formulae to calculate the area of each triangle.

a)

10 cm · 6 cm · 8 cm
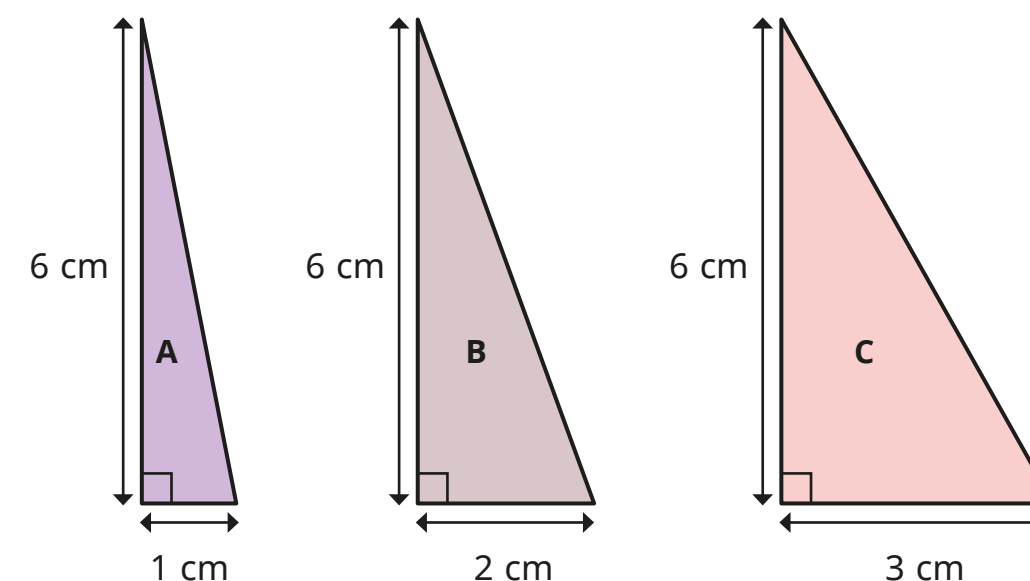
$$\frac{1}{2} \times \boxed{} \times \boxed{} = \boxed{} \text{ cm}^2$$

b)

15 mm · 17 mm · 8 mm

$$\frac{1}{2} \times \boxed{} \times \boxed{} = \boxed{} \text{ mm}^2$$

c)

12 cm · 13 cm · 5 cm

$$\frac{1}{2} \times \boxed{} \times \boxed{} = \boxed{} \text{ cm}^2$$

6 Calculate the areas of the triangles.

a)

9 cm · 15 cm · 12 cm

area = $\boxed{}$ cm²

b)

26 mm · 24 mm · 10 mm

area = $\boxed{}$ mm²

c)

24 m · 7 m · 25 m

area = $\boxed{}$ m²

d)

16 mm · 34 mm · 3 cm

area = $\boxed{}$ mm²

7 Here are three right-angled triangles.

6 cm · **A** · 1 cm

6 cm · **B** · 2 cm

6 cm · **C** · 3 cm

a) Work out the area of each triangle.

A $\boxed{}$ cm²   B $\boxed{}$ cm²   C $\boxed{}$ cm²

b) The base of the triangle is increasing by 1 cm each time.

What do you notice about the areas?

_____

_____

What happens if the base and height increase?