

# HOME EXERCISE 9

**Set out carefully all appropriate working.**

Do **not** use a calculator in questions 1 to 5.

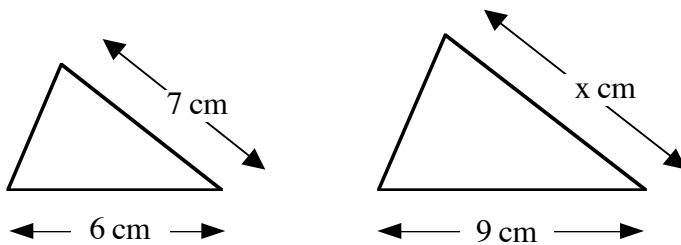
Use a calculator in question 6.

1. Evaluate:  $\frac{4}{5}$  of  $\frac{3}{8}$  (2)

2. Remove the brackets and simplify:  $(t - 3)^2$  (2)

3. Solve the equation:  $x(x + 3) = x(x - 2) + 15$  (4)

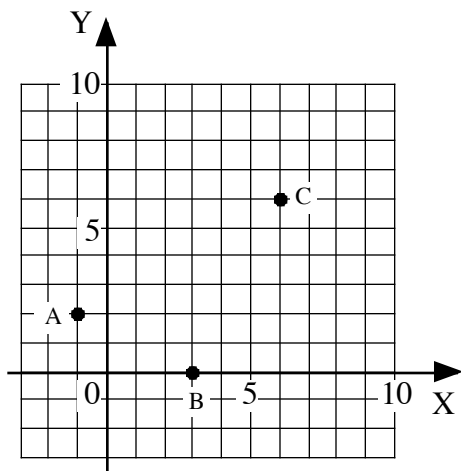
4. The two triangles shown are similar.



Find the the value of x.

(3)

5.



Points A (-1, 2) , B (3, 0) and C (6, 6) are plotted as shown.

(a) Show that the distance between points:

(i) A and B is  $\sqrt{20}$  units. (1)

(ii) B and C is  $\sqrt{45}$  units. (1)

(iii) A and C is  $\sqrt{65}$  units. (1)

(b) Show that angle ABC is  $90^\circ$ . (3)

6. The Helios 2 solar probe travels at a speed of  $2 \cdot 528 \times 10^5$  kilometres per hour.  
The Sun is  $1 \cdot 496 \times 10^8$  kilometres from earth.

Calculate the time it takes, in hours, for the probe to reach the Sun. (3)

Write your answer correct to **3 significant figures**.

**Total 20 marks**