

GCSE Maths: Similar shapes and scale factors (Foundation): worksheet

GCSE Maths - Transformations and Similarity - Foundation - Lesson 21.8

Name: _____

Date: _____

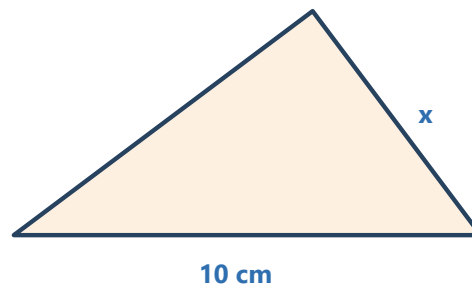
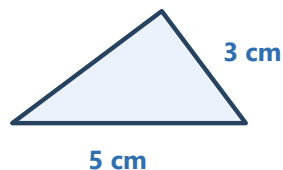
Score: _____

19 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch21-transformations-congruence-similarity/foundation/similar-shapes-and-scale-factors/

Exercise 21I Similar shapes and missing lengths Non-calculator

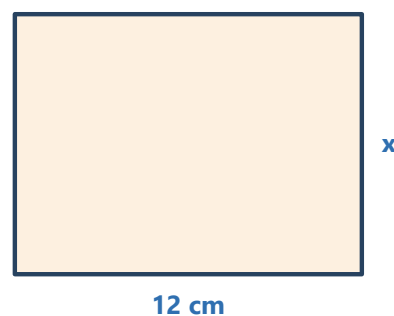
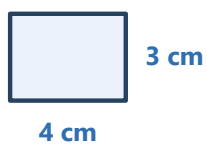
- 1 Each pair of shapes is similar and drawn to scale. Work out the value of x in each pair.

(a)



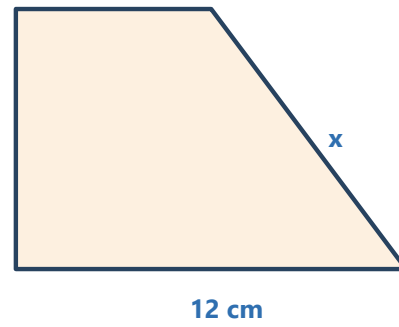
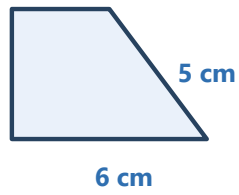
Answer:

(b)



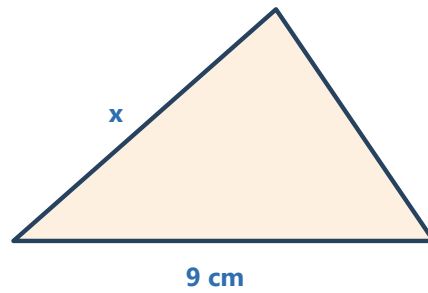
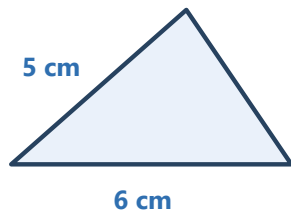
Answer:

(c)



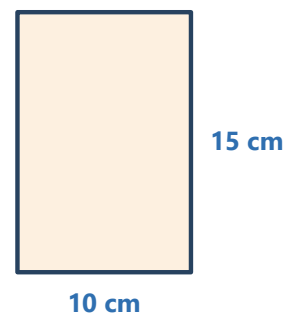
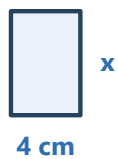
Answer:

- 2 The two shapes are mathematically similar. The diagrams are drawn to scale. Work out the value of x .



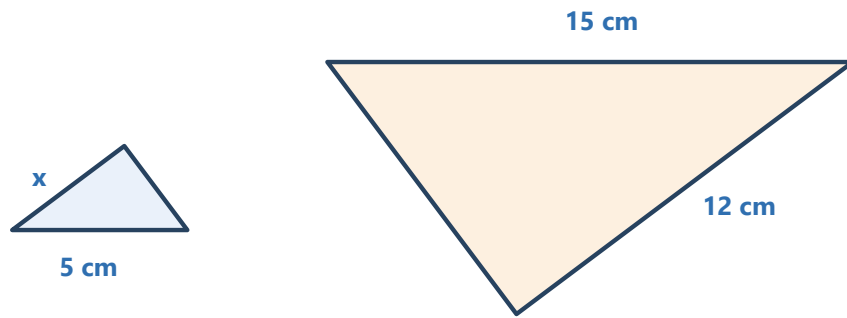
Answer:

- 3 The two shapes are mathematically similar. The diagrams are drawn to scale. Work out the value of x .



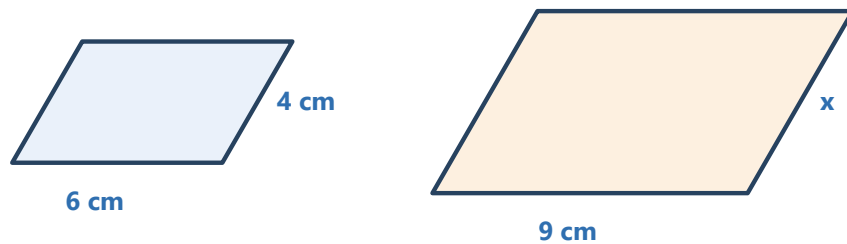
Answer:

- 4 The two shapes are mathematically similar. The diagrams are drawn to scale. Work out the value of x .



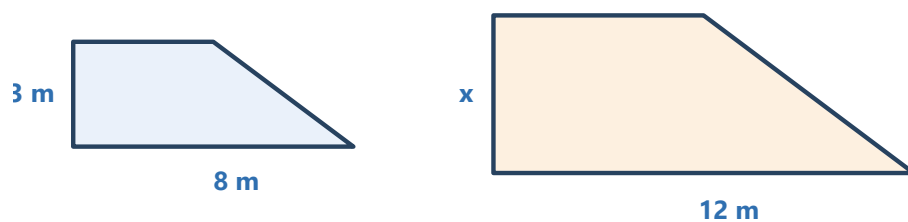
Answer:

- 5** The two shapes are mathematically similar. The diagrams are drawn to scale. Work out the value of x .



Answer:

- 6** The two shapes are mathematically similar. The diagrams are drawn to scale. Work out the value of x .



Answer:

- 7** The ratio of the corresponding sides of two similar shapes is $2 : 5$. A side of the smaller shape is 8 cm. Work out the length of the matching side of the larger shape.

Answer:

- 8** Say whether each pair of rectangles is similar. Show your working.

(a) 4 cm by 6 cm and 6 cm by 9 cm

Answer:

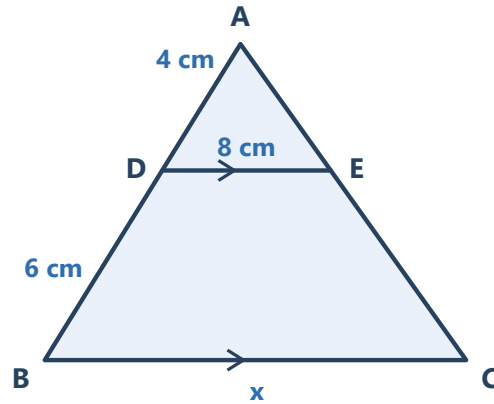
(b) 3 cm by 5 cm and 6 cm by 9 cm

Answer:

(c) 2 cm by 5 cm and 4 cm by 10 cm

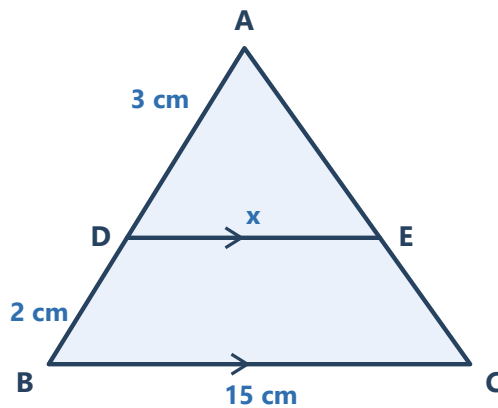
Answer:

- 9 In triangle ABC, D is on AB and E is on AC. DE is parallel to BC. The diagram is drawn to scale. Work out the value of x .



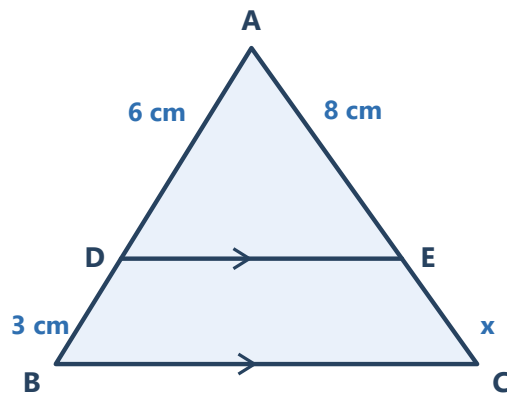
Answer:

- 10 In triangle ABC, D is on AB and E is on AC. DE is parallel to BC. The diagram is drawn to scale. Work out the value of x .



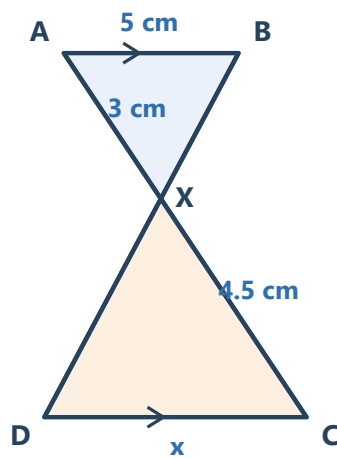
Answer:

- 11 In triangle ABC, D is on AB and E is on AC. DE is parallel to BC. The diagram is drawn to scale. Work out the value of x .



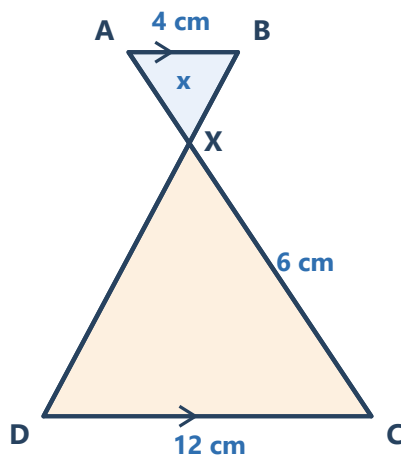
Answer:

- 12** AC and BD cross at X . AB is parallel to CD . The diagram is drawn to scale. Work out the value of x .



Answer:

- 13** AC and BD cross at X . AB is parallel to CD . The diagram is drawn to scale. Work out the value of x .



Answer:

- 14** A photograph measures 12 cm by 18 cm. It is enlarged so that its width becomes 20 cm. Work out the new height of the photograph.

Answer:

- 15** A model car is made with a scale of 1 : 24. The real car is 4.8 m long. Work out the length of the model, in centimetres.

Answer:

- 16** A pole 2 m tall casts a shadow 1.5 m long. At the same time a building casts a shadow 18 m long. Work out the height of the building.

Answer:

- 17** Explain why any two squares are similar, but two rectangles are not always similar.

Answer:

- 18** Triangle ABC has angles of 40° and 60° . Triangle PQR has angles of 60° and 80° . Show that the triangles are similar.

Answer:

- 19 Challenge.** A4 paper measures 297 mm by 210 mm and A5 paper measures 210 mm by 148.5 mm. Show that A4 and A5 paper are similar rectangles (correct to 3 significant figures).

Answer: