Test - Similarity and congruence

Year: Year 11 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Similar shapes

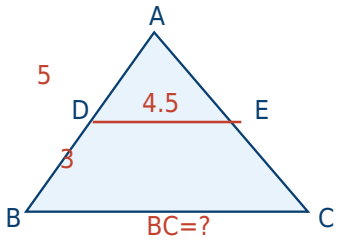
Two rectangles are similar. The first is 6 cm by 8 cm. The second has length 15 cm on the side corresponding to 6 cm.

a. Find the scale factor. (1 mark)
b. Find the other side of the second rectangle. (1 mark)
c. Find the ratio of the areas. (2 marks)

Question 2 (4 marks)

Question 2 – Parallel line in a triangle

In triangle ABC, DE is parallel to BC. $AD = 3$ cm, $DB = 5$ cm and $DE = 4.5$ cm.



a. Explain why ADE and ABC are similar. (1 mark)
b. Find BC. (3 marks)

Question 3 (4 marks)

Question 3 – Area and volume (Higher)

Two similar shapes have lengths in the ratio $3 : 5$.

a. The area of the smaller is 90 cm². Find the area of the larger. (2 marks)
b. The volume of the smaller solid is 108 cm³. Find the volume of the larger. (2 marks)

Question 4 (4 marks)

Question 4 – Congruence proof

$ABCD$ is a rectangle and M is the midpoint of AB. Prove that $MC = MD$.

Question 5 (4 marks)

Question 5 – Problem: a model lorry (Higher)

A model lorry is built to a scale of $1 : 12$. The model is 30 cm long and holds 2 litres.

a. Find the length of the real lorry in metres. (1 mark)
b. Find the capacity of the real lorry in litres. (3 marks)