teachably

Name _____

Date _____

GCSE Mathematics

H

Similar Shapes

GCSE Maths Practice

Total Marks	Time	Questions
45	45 min	20

Instructions:

- Do not use a calculator when you see: 
- Answer all questions in the spaces provided.
- Show all your working - marks are awarded for method as well as final answers.
- Cross through any work you do not want to be marked.
- Check your answers if you have time at the end.

Edexcel-style questions

Q1

Grade 6 Edexcel style

Triangle ABC is similar to triangle DEF. AB = 5 cm, BC = 7 cm, CA = 9 cm, DE = 15 cm, EF = 21 cm, as shown. Find the length FD.

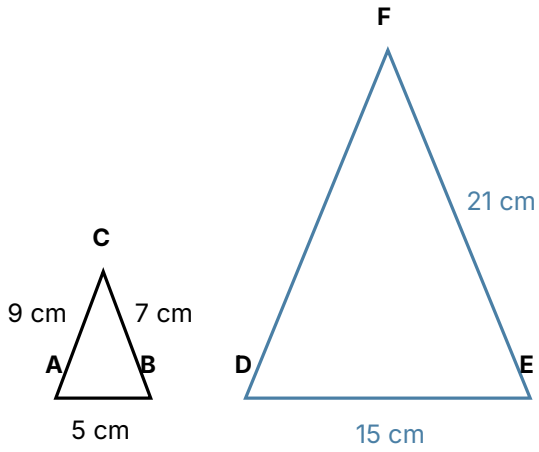

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q2

Grade 6 Edexcel style

In triangle ABE, DC is parallel to BE, with D on AB and C on AE. AD = 4 cm, AB = 6 cm, and DC = 6 cm, as shown. Find the length BE.

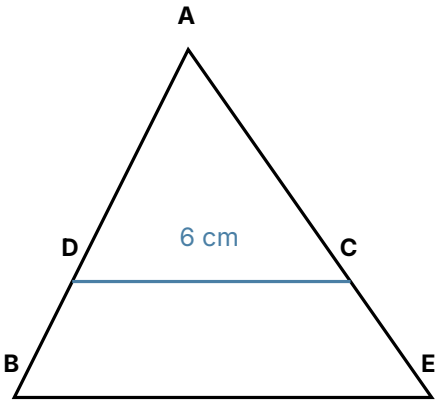

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q3

Grade 6 Edexcel style

Two similar triangles, ABC and DEF, have a linear scale factor of 3 (DE = 3 × AB), as shown. The area of triangle ABC is 20 cm². Find the area of triangle DEF.

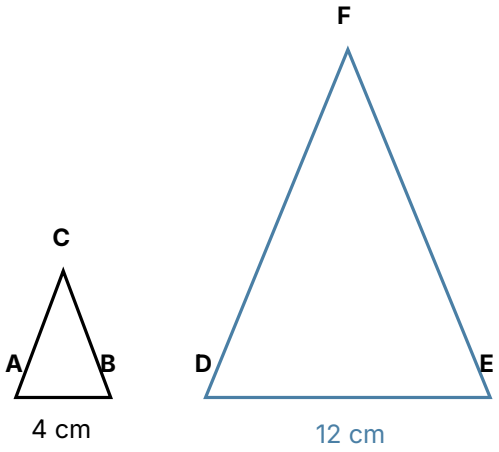

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q4

Grade 7 Edexcel style

Two similar solids have a linear scale factor of 2 (corresponding lengths 4 cm and 8 cm). The volume of the smaller solid is 30 cm³. Find the volume of the larger solid.

Answer _____

teachably **[2 marks]**

Q5

Grade 7 Edexcel style

A person 1.8 m tall casts a shadow 2.4 m long. At the same time, a nearby tree casts a shadow 10 m long. Assuming the sun's rays are parallel (so the person and the tree form similar triangles with their shadows), find the height of the tree.

Answer _____

teachably **[2 marks]**

AQA-style questions

Q6

Grade 6 AQA style

Triangle ABC is similar to triangle DEF. AB = 4 cm, BC = 6 cm, DE = 10 cm, EF = 15 cm, FD = 20 cm, as shown. Find the length CA.

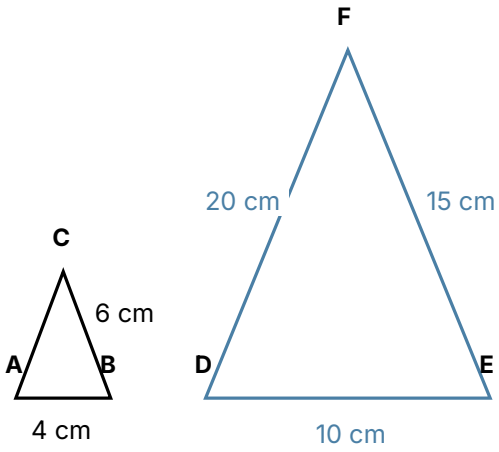

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q7

Grade 6 AQA style

In triangle ABE, DC is parallel to BE, with D on AB and C on AE. AD = 3 cm, AB = 9 cm, and DC = 4 cm, as shown. Find the length BE.

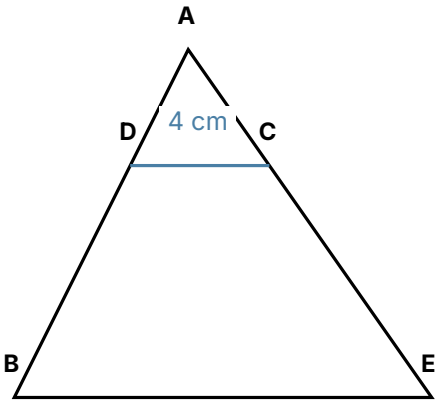

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q8

Grade 6 AQA style

Two similar triangles, ABC and DEF, have a linear scale factor of 2 (DE = 2 × AB), as shown. The area of triangle DEF is 100 cm². Find the area of triangle ABC.

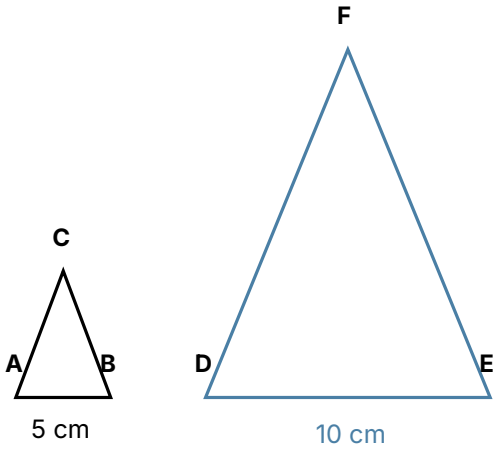

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q9

Grade 7 AQA style

Two similar solids have volumes of 27 cm³ and 216 cm³. Find the linear scale factor between them.

Answer _____

teachably **[2 marks]**

Q10

Grade 7 AQA style

Two similar bottles have surface areas in the ratio 4 : 9. Find the ratio of their volumes.

Answer _____

OCR-style questions

Q11

Grade 6 OCR style

Triangle DEF is similar to triangle ABC. DE = 12 cm, EF = 18 cm, FD = 24 cm, AB = 4 cm, CA = 8 cm, as shown. Find the length BC.

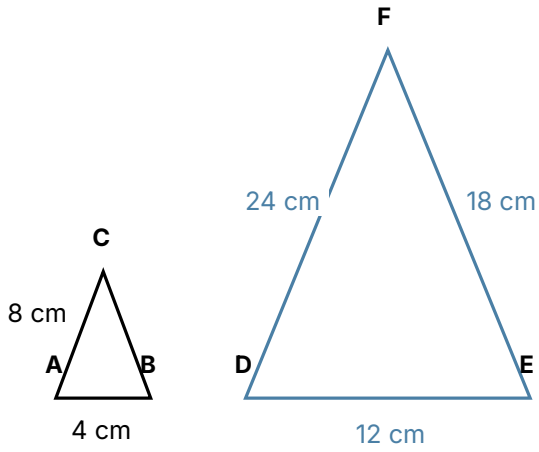

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q12

Grade 6 OCR style

In triangle ABE, DC is parallel to BE, with D on AB and C on AE. AD = 5 cm, AB = 8 cm, and BE = 16 cm, as shown. Find the length DC.

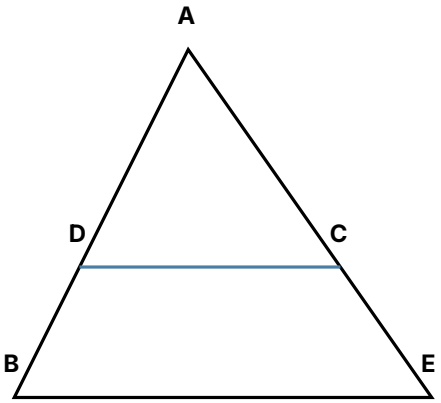

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q13

Grade 7 OCR style

Two similar shapes have areas of 8 cm² and 72 cm². Find the linear scale factor between them.

Answer _____

teachably **[2 marks]**

Q14

Grade 7 OCR style

Two similar solids have a linear scale factor of 3 (corresponding lengths 3 cm and 9 cm). The volume of the larger solid is 270 cm³. Find the volume of the smaller solid.

Answer _____

teachably **[2 marks]**

Q15

Grade 7 OCR style

A scale model of a building is built at a scale of 1 : 20. It costs \$50 to paint the model. Assuming paint cost is proportional to surface area, find the cost to paint the actual building.

Answer _____

teachably **[3 marks]**

Teachably-style questions

Q16

Grade 6 Teachably style

Triangle ABC is similar to triangle DEF. AB = 3 cm, BC = 5 cm, CA = 7 cm, EF = 10 cm, FD = 14 cm, as shown. Find the length DE.

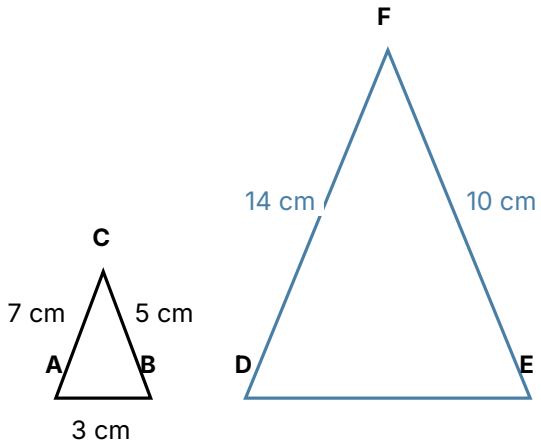

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q17

Grade 7 Teachably style

In triangle ABE, DC is parallel to BE, with D on AB and C on AE. AD = 6 cm, AB = 9 cm, and BE = 15 cm, as shown. Find the length DC.

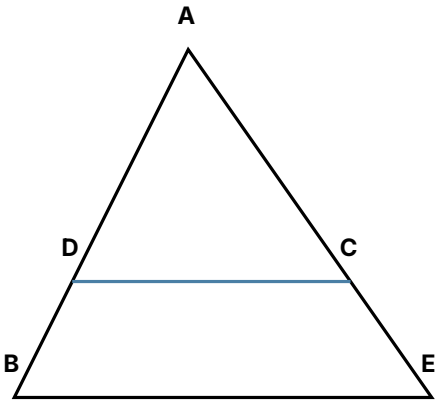

Diagram NOT accurately drawn

Answer _____

teachably **[2 marks]**

Q18

Grade 7 Teachably style

Two similar shapes have areas of 16 cm² and 144 cm². A side of the smaller shape is 5 cm. Find the length of the corresponding side on the larger shape.

Answer _____

teachably **[3 marks]**

Q19

Grade 7 Teachably style

Two similar solids have volumes of 5 cm³ and 135 cm³. The smaller solid has a height of 2 cm. Find the height of the larger solid.

Answer _____

teachably **[3 marks]**

Q20

Grade 7 Teachably style

In triangle ABE, DC is parallel to BE, with D on AB and C on AE. AD = 6 cm, AB = 10 cm, DC = 9 cm, and the area of triangle ADC is 32.4 cm², as shown. Find (a) the length of BE, and (b) the area of triangle ABE.

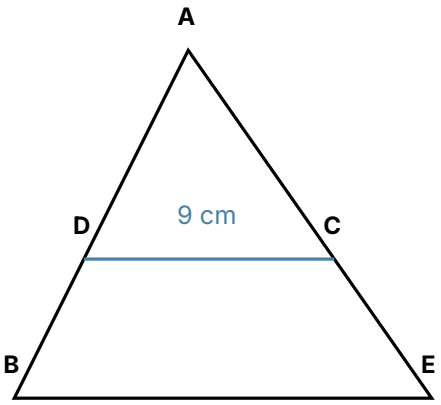

Diagram NOT accurately drawn

Answer _____

teachably **[4 marks]**

END OF PAPER