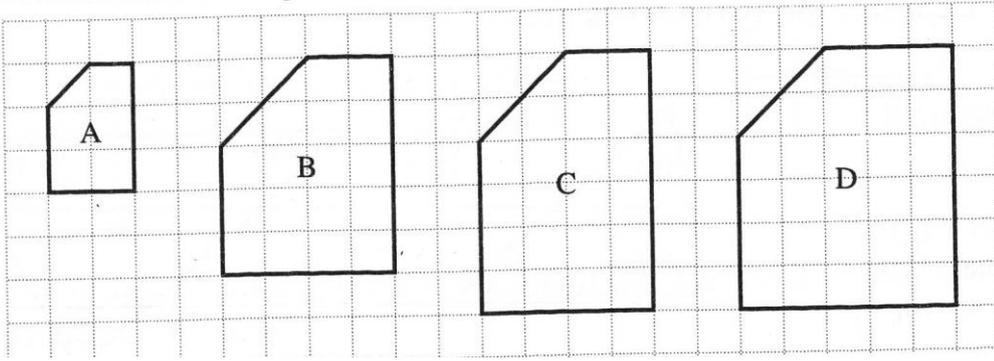
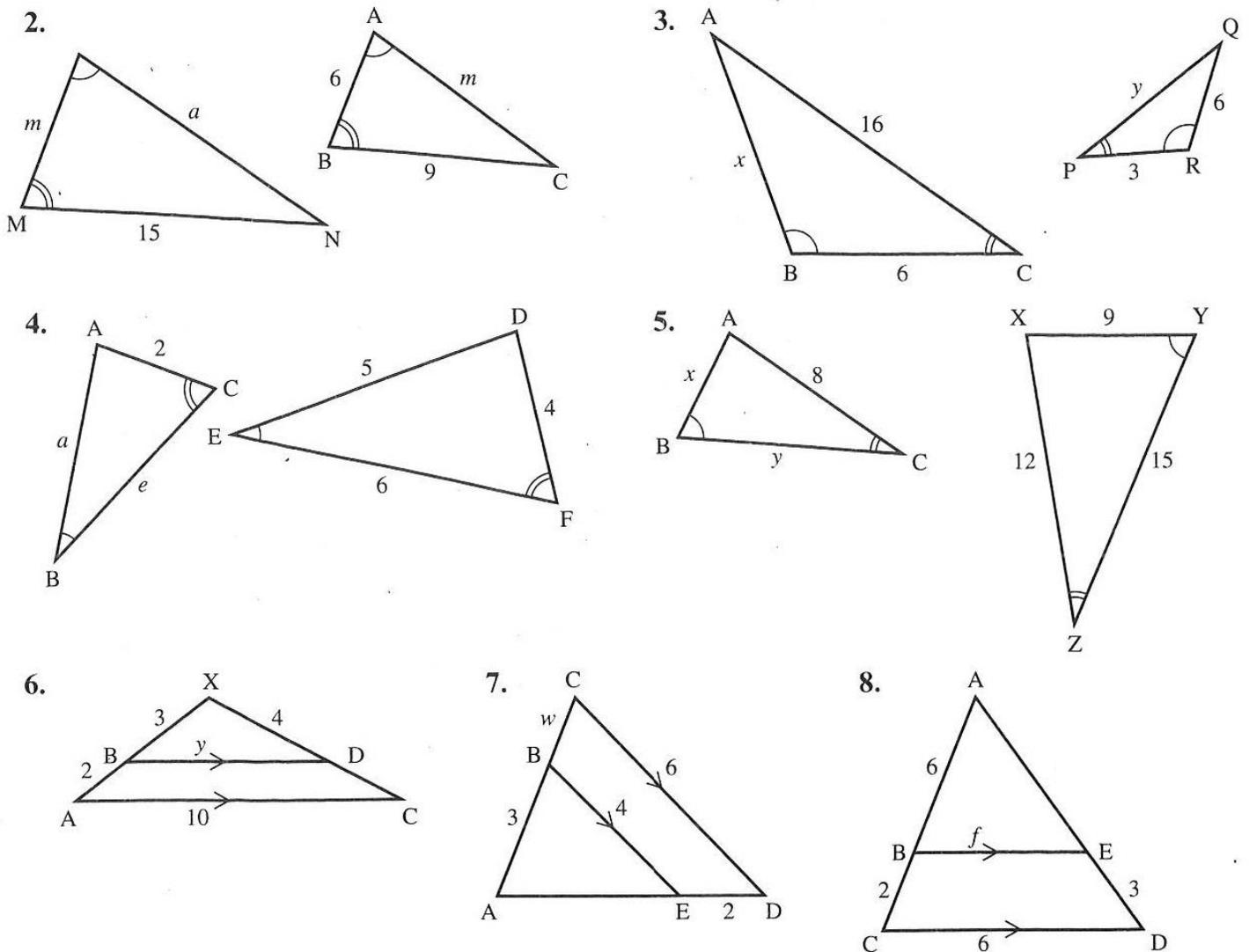


Similar Shapes Revision

1. Which of the shapes B, C, D is similar to shape A?

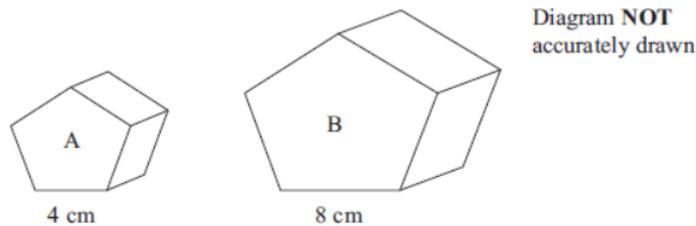


In the following questions, find the missing sides of these similar triangles



- 9) A 20 Euro note is a rectangle 133 mm long and 72 mm wide.
 A 500 Euro Note is a rectangle 165 mm long and 82 mm wide.
 Show that the two rectangles are not mathematically similar.

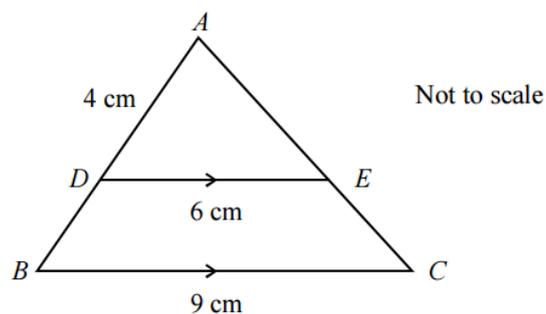
- 10) These two solids are mathematically similar



The volume of A is 80cm^3 . Find the volume of B.

Solid B has a total surface area of 160cm^2 . Find the total surface area of A.

- 11) Prove that triangles ABC and ADE are similar. Find the length of BD.



- 12) A model of an airship is in the scale 1:200.
- If the real airship is 30m long, find the length of the model
 - If the model is covered in 18cm^2 of fabric, find the area of fabric in the real airship
 - If the real airship is filled with $40,000\text{m}^3$ of helium, find out how much helium I would need to fill the model with.

Speed, Distance, Time Revision

1. Find the time taken for the following journeys:

- 100 km at a speed of 40 km/h
- 250 miles at a speed of 80 miles per hour
- 15 metres at a speed of 20 cm/s. (answer in seconds)
- 10^4 metres at a speed of 2.5 km/h

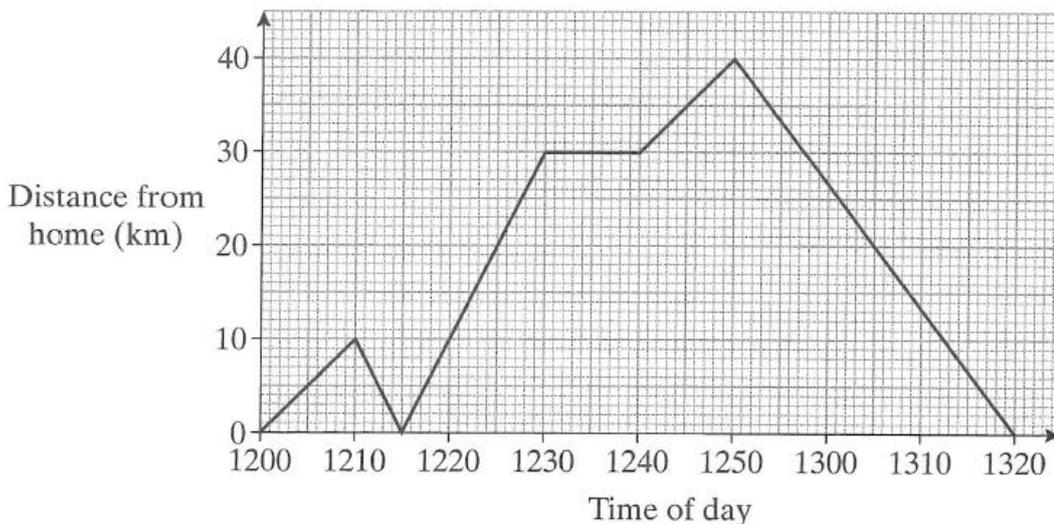
2) Convert to the units given in brackets

- 90km/hr (m/s)
- 5m/s (mph)
- 5.46 hours (seconds)

3. Find the speeds of the bodies which move as follows:

- a distance of 600 km in 8 hours
- a distance of 500 m in 10 minutes (in km/h)

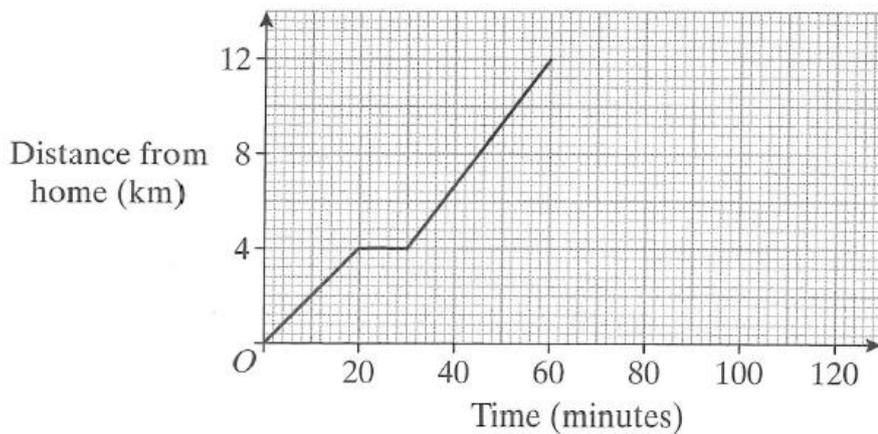
4. Find the distance travelled (in metres) in the following:
- at a speed of 40 km/h for $\frac{1}{4}$ hour
 - at a speed of 338.4 km/h for 10 minutes
 - at a speed of 15 m/s for 5 minutes
 - at a speed of 14 m/s for 1 hour
5. A car travels 60 km at 30 km/h and then a further 180 km at 160 km/h. Find
- the total time taken
 - the average speed for the whole journey
6. Bishen sets off from home at 12 noon to meet his grandmother at the airport. On the way, he remembers that he had left his mobile phone at home. He returns home to collect it and sets off to the airport again to meet his grandmother. At the airport he has to wait for her. He drives her the 10 km to her house and he then returns home. The diagram shows Bishen's distance/time graph for the 80 minute journey.



- At what time did Bishen arrive at the airport? (1)
- How many minutes did he wait at the airport? (1)
- How many kilometres did Bishen travel between noon and 1320? (1)
- Between which two times was Bishen driving most quickly? (1)
- At what times was Bishen 10 km from the airport? (2)
- Calculate Bishen's speed during his journey home from his grandmother's house. Give your answer in kilometres per hour. (2)

(Total 8 marks)

- 7 Xanthe cycled from her home to visit her uncle.
 Xanthe stopped at a shop on the way to buy him a present.
 The diagram shows her distance/time graph for the journey to her uncle's house.



- a) For how many minutes did Xanthe stop to buy the present? (1)
 b) Find the distance from Xanthe's home to her uncle's house. (1)
 c) Calculate the speed at which Xanthe cycled from home to the shop.
 Give your answer in kilometres per hour. (2)
 Xanthe stayed at her uncle's house for 30 minutes.
 She then travelled back home at 48 km/h in her uncle's car.
 d) i) Complete a copy of the distance/time graph.
 ii) For how many minutes had Xanthe been away from home? (4)

(Total 8 marks)

Answers – Similar Shapes

- 1) C 2) $m=10$ $a=16\frac{2}{3}$ 3) $x = 12$ $y=8$ 4) $a=2.5$ $e=3$ 5) $y=10$ $x=6$ 6) $y=6$
 7) $w=1.5$ 8) $f=4.5$ 9) $\frac{165}{133}$ is not equal to $\frac{82}{72}$, so not same SF, so not similar
 10) 640cm^3 and 40cm^2 11) $\angle ADE = \angle ABC$ (corresponding) $\angle AED = \angle ACB$ (corresponding)
 and $\angle A$ is the same angle in both triangles, 3 angles the same, so must be similar $BD=2$
 12a) 15cm b) 72m^2 c) 0.005m^3

Answers - Speed – distance-time

- 1a) 2.5hr b) 3.125hr c) 75 secs d) 4hr 2a) 25 b) 11.25 c) 19656 3a) 25km/hr
 c) 3000km/hr 4a) 10km b) 56.4km c) 4500m d) 50.4km 5a) 3.125hr b) 76.8km/hr
 6a) 1230 b) 10 c) 100 d) 1215 and 1230 e) 1230 to 1240 and 1257 f) 120
 7a) 10 b) 12km c) 12km/hr d) 105