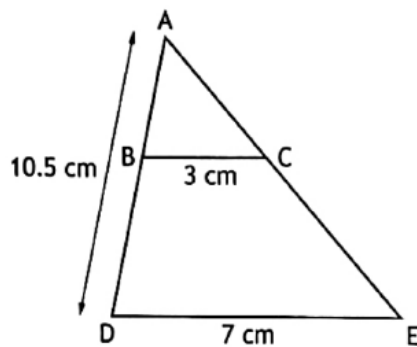


SQA Past paper questions

2024 - Paper 1 - Question 14

In the diagram, triangles ABC and ADE are mathematically similar.

- $BC = 3$ centimetres
- $DE = 7$ centimetres
- $AD = 10.5$ centimetres



Calculate the length of BD.

3

Click [here](#) for video solution. 

2021 - Paper 2 - Question 13

The two photographs shown are mathematically similar.



12 cm



width

The small photograph has an area of 80 square centimetres, and is 12 centimetres wide.

The large photograph has an area of 500 square centimetres.

Calculate the width of the large photograph.

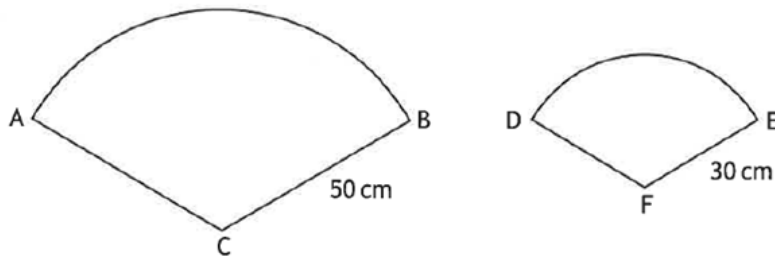
3

Click [here](#) for video solution. 

2019 - Paper 2 - Question 12

In the diagram

- ABC is a sector of a circle, centre C
- DEF is a sector of a circle, centre F.



The sectors are mathematically similar.

The area of the larger sector, ABC, is 2750 square centimetres.

- (a) Calculate the area of the smaller sector, DEF. 3
- (b) Calculate the size of angle ACB. 3

Click [here](#) for video solution. 

2018 - Paper 2 - Question 18

A cinema sells popcorn in two different sized cartons.



The small carton is 16 centimetres deep and has a volume of 576 cubic centimetres.

The large carton is 24 centimetres deep and has a volume of 1125 cubic centimetres.

- (a) Show that the two cartons are not mathematically similar. 3
- The large carton is redesigned so that the two cartons are now mathematically similar.
- The volume of the redesigned large carton is 1500 cubic centimetres. 2
- (b) Calculate the depth of the redesigned large carton.

Click [here](#) for video solution. 

2017 - Paper 1 - Question 15

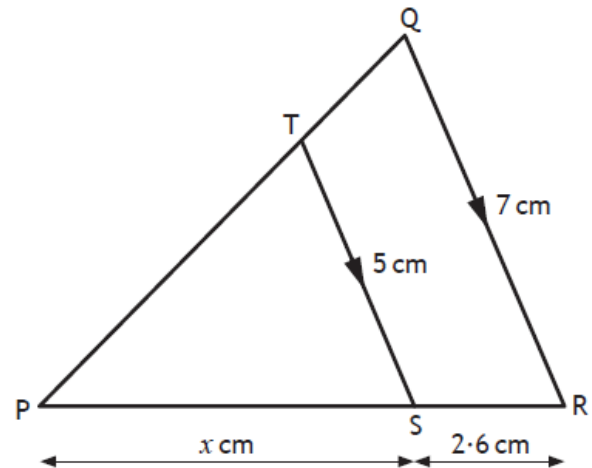
In the diagram below:

- TS is parallel to QR
- $TS = 5$ centimetres
- $QR = 7$ centimetres
- $SR = 2.6$ centimetres

The length of PS is x centimetres.

Calculate the value of x .

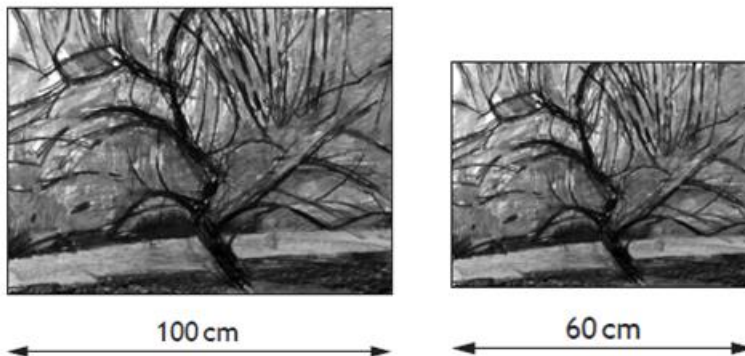
3



Click [here](#) for video solution. 

2016 - Paper 2 - Question 11

Two pictures are mathematically similar in shape.



The cost of each picture is proportional to its area.

The large picture costs £13.75.

Find the cost of the small picture.

3

Click [here](#) for video solution. 

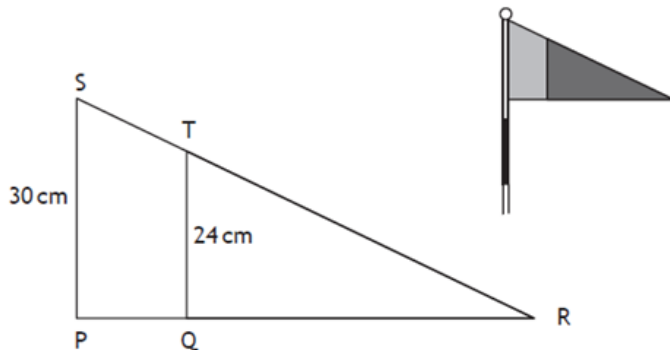
2015 - Paper 2 - Question 9

The flag at each hole on a golf course is coloured red and blue.

The diagram below represents a flag.

Triangle QRT represents the red section.

PQTS represents the blue section.



Triangles PRS and QRT are mathematically similar.

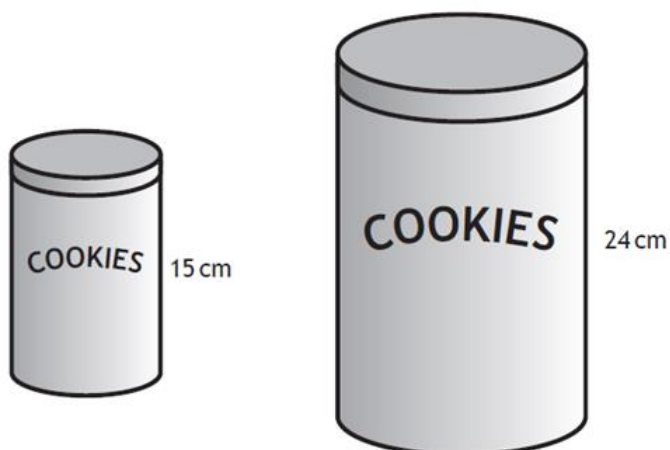
The area of triangle QRT is 400 square centimetres.

Calculate the area of PQTS, the blue section of the flag. 4

Click [here](#) for video solution. 

2014 - Paper 2 - Question 5

A supermarket sells cylindrical cookie jars which are mathematically similar.



The smaller jar has a height of 15 centimetres and a volume of 750 cubic centimetres.

The larger jar has a height of 24 centimetres.

Calculate the volume of the larger jar.

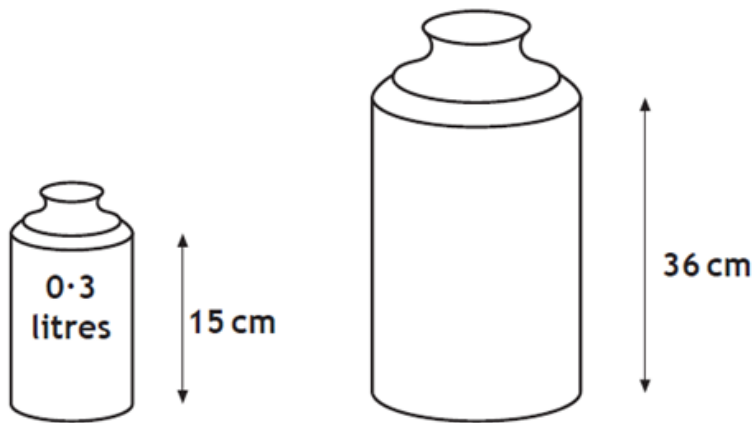
3

Click [here](#) for video solution. 

Specimen - Paper 2 - Question 10

Screenwash is available in two different sized bottles, 'Mini' and 'Maxi'.

The bottles are mathematically similar.



Calculate the volume of the 'Maxi' bottle. **3**

Click [here](#) for video solution. 

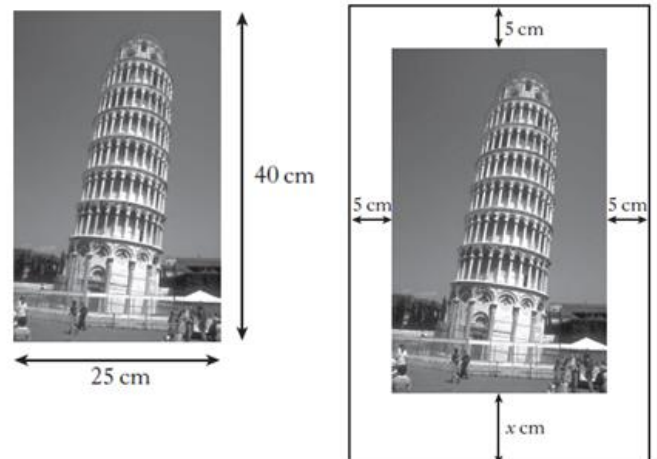
2013 - Paper 2 - Question 13

Asim has a poster which is 25 centimetres wide and 40 centimetres high.

He decides to place it on a white card.

The card and the poster are mathematically similar.

The border is 5 centimetres wide on three sides and x centimetres wide on the fourth side as shown.

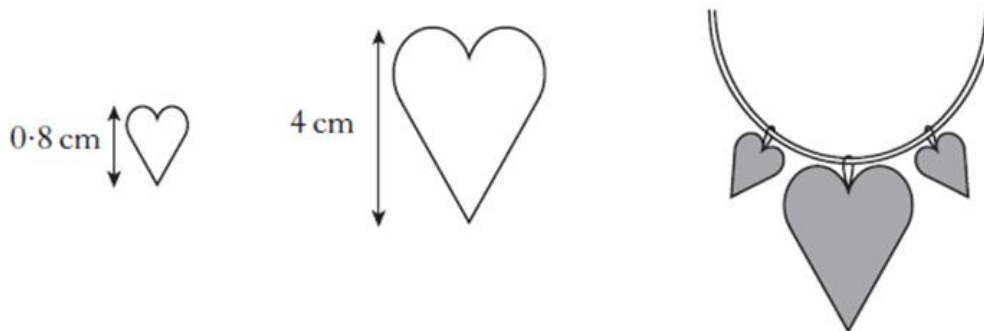


Calculate the value of x . **4**

Click [here](#) for video solution. 

2012 - Paper 2 - Question 8

A necklace is made of beads which are mathematically similar.



The height of the smaller bead is 0.8 centimetres and its area is 0.6 square centimetres.

The height of the larger bead is 4 centimetres.

Find the area of the larger bead.

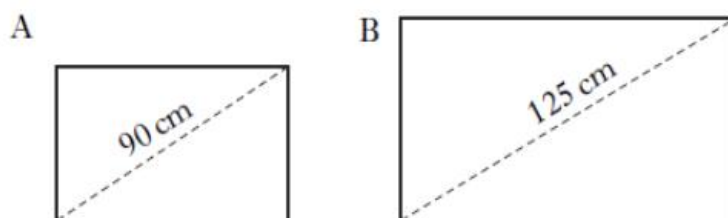
3

Click [here](#) for video solution. 

2011 - Paper 2 - Question 6

Two rectangular solar panels, A and B, are mathematically similar.

Panel A has a diagonal of 90 centimetres and an area of 4020 square centimetres.



A salesman claims that panel B, with a diagonal of 125 centimetres, will be double the area of panel A.

Is this claim justified?

Show all your working.

4

Click [here](#) for video solution. 

2010 - Paper 2 - Question 7

Shampoo is available in travel size and salon size bottles.

The bottles are mathematically similar.



The travel size contains 200 millilitres and is 12 centimetres in height.

The salon size contains 1600 millilitres.

Calculate the height of the salon size bottle.

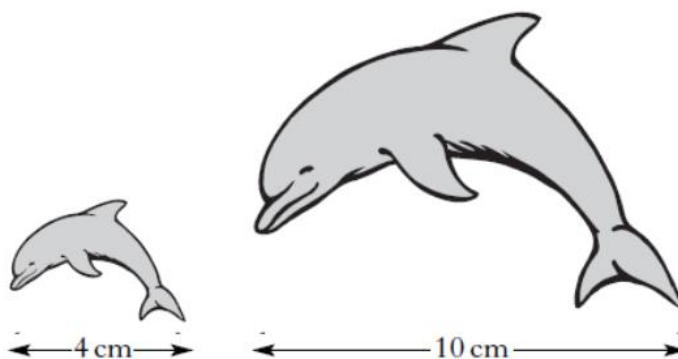
3

Click [here](#) for video solution. 

2009 - Paper 2 - Question 4

Two fridge magnets are mathematically similar.

One magnet is 4 centimetres long and the other is 10 centimetres long.



The area of the smaller magnet is 18 square centimetres.

Calculate the area of the larger magnet.

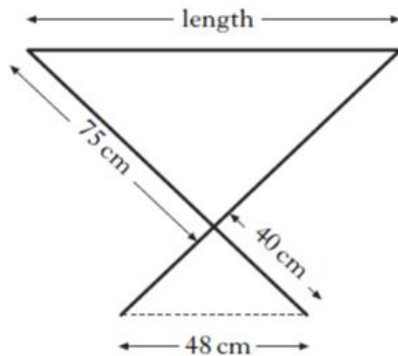
3

Click [here](#) for video solution. 

2007 - Paper 1 - Question 8

Mick needs an ironing board.

He sees one in a catalogue with measurements as shown in the diagram below.



When the ironing board is set up, two similar triangles are formed.

Mick wants an ironing board which is at least 80 centimetres in length.

Does this ironing board meet Mick's requirements?

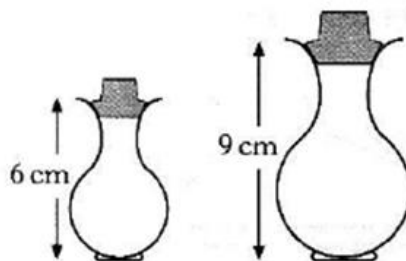
Show all your working.

3

Click [here](#) for video solution. 

2003 - Paper 2 - Question 9

Two perfume bottles are mathematically similar in shape.



The smaller one is 6 centimetres high and holds 30 millilitres of perfume.

The larger one is 9 centimetres high.

What volume of perfume will the larger one hold?

3

Click [here](#) for video solution. 