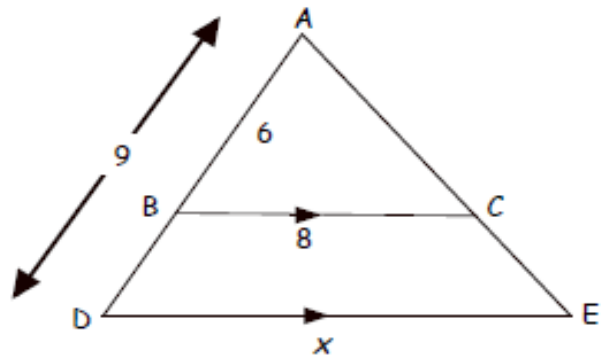


**Unit level:**

1. In the triangle shown, BC is parallel to DE.

Triangle ABC is similar to triangle ADE.

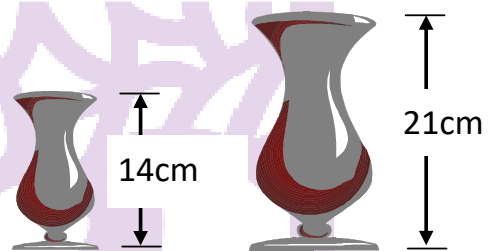
Calculate the value of x:



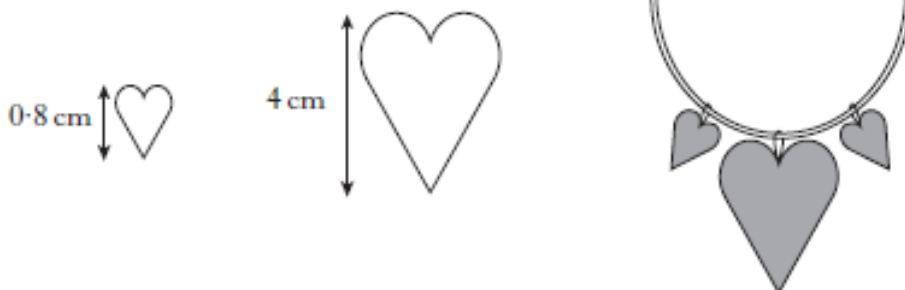
2. The flower vases opposite are mathematically similar.

To fill the small vase with water takes 400 millilitres.

How much water is needed to fill the large vase?



3. 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 cm. Find the area of the larger bead.

**Assessment level:**

4. Shampoo is available in travel size and salon size bottles. The bottles are mathematically similar.

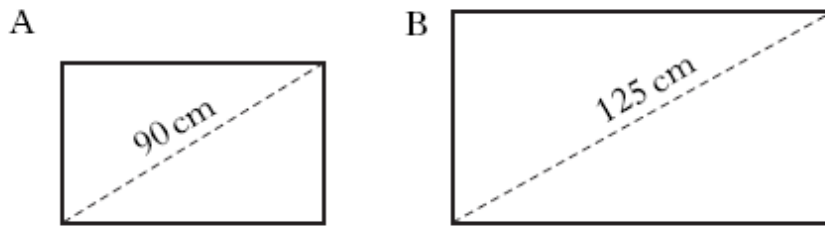
The travel size contains 200 millilitres and is 12 cm in height.

The salon size contains 1600 millilitres.

Calculate the height of the salon size bottle.



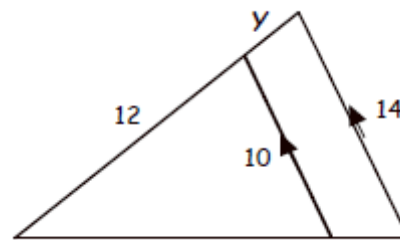
5. Two rectangular solar panels, A and B, are mathematically similar.  
Panel A has a diagonal of 90cm and an area of 4020 square centimetres.



A salesperson claims that panel B, with a diagonal of 125cm, will be double the area of Panel A.

Is this claim justified? **Show all your working.**

6. In the triangle shown on the right, calculate the length of  $y$ .



7. 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.

ACADEMY