

Lesson 6

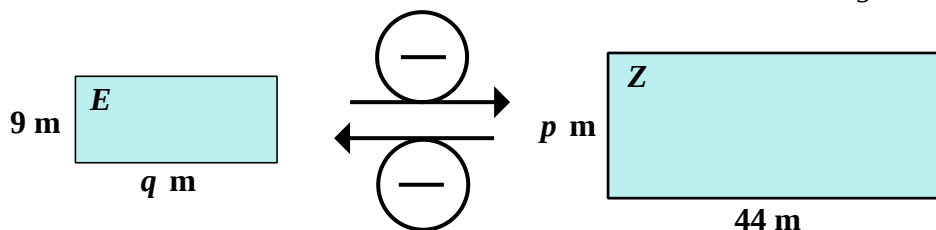
GCSE Mathematics Ratio and Similarity

6.1 Test

Marks Available : 44
You may use a calculator

Question 1

For the similar rectangles E and Z , shown below, find the lengths marked p and q given that the length scale factor (greater than 1) of the similarity is $\frac{4}{3}$



[2 marks]

Question 2

An elastic band of length 28 cm is stretched with length scale factor $\frac{7}{4}$
What is the length of the stretched band ?

[2 marks]

Question 3

When made wet a 90 cm piece of string shrinks with length scale factor $\frac{7}{15}$
What is the length of the shrunk string ?

[2 marks]

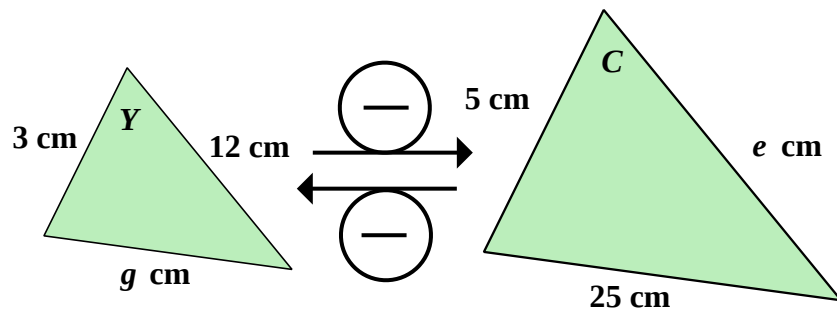
Question 4

Two rectangles are similar with length scale factor $\frac{5}{4}$
The smaller measures 24 m by 30 m.
What are the measurements of the larger ?

[2 marks]

Question 5

For the similar triangles Y and C , shown below, find the length scale factor (greater than 1) of the similarity and also the lengths marked e and g



[3 marks]

Question 6

Cancel down these fractions as far as possible by repeated division of the numerator and denominator by 2, 3, 5 or 7.

(i) $\frac{18}{4}$

(ii) $\frac{35}{21}$

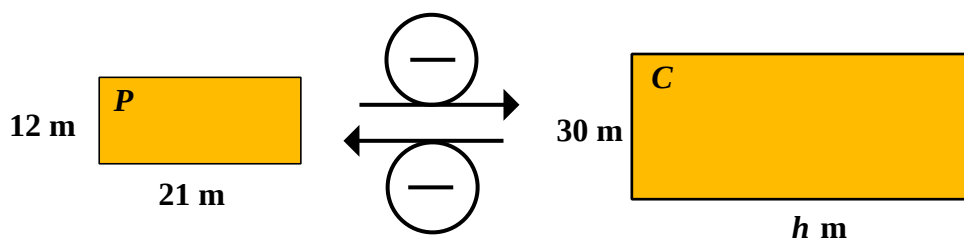
(iii) $\frac{21}{9}$

(iv) $\frac{27}{81}$

[4 marks]

Question 7

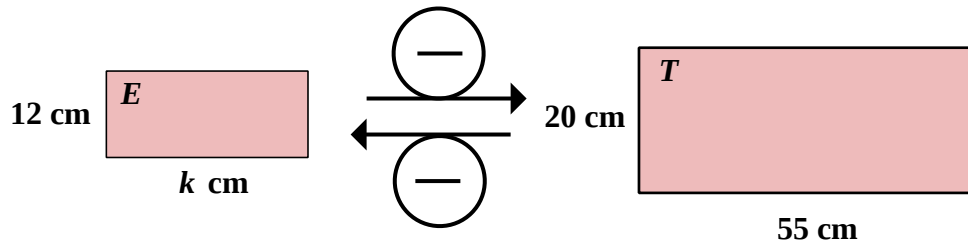
For the similar rectangles P and C , shown below, find the length scale factor (greater than 1) of the similarity (cancel down the fraction) and also the length marked h



[2 marks]

Question 8

For the similar rectangles E and T , shown below, find the length scale factor (greater than 1) of the similarity (cancel down the fraction) and also the length marked k



[2 marks]

Question 9

Simplify each of the following

(i)

$$\left(\frac{7}{6}\right)^2 = \text{---}$$

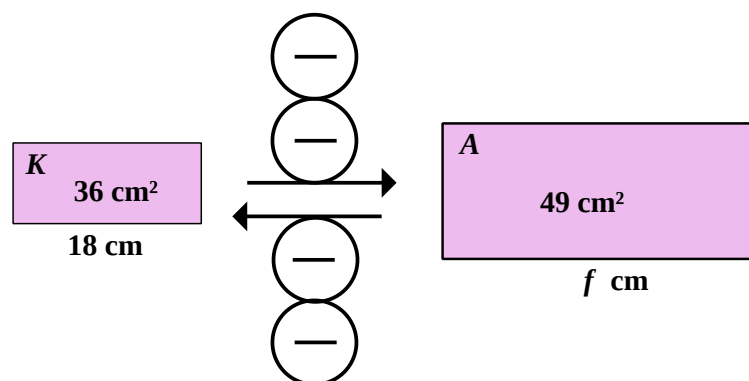
(ii)

$$\sqrt{\frac{64}{25}} = \text{---}$$

(iii)

$$\left(\frac{16}{9}\right)^{0.5} = \text{---}$$

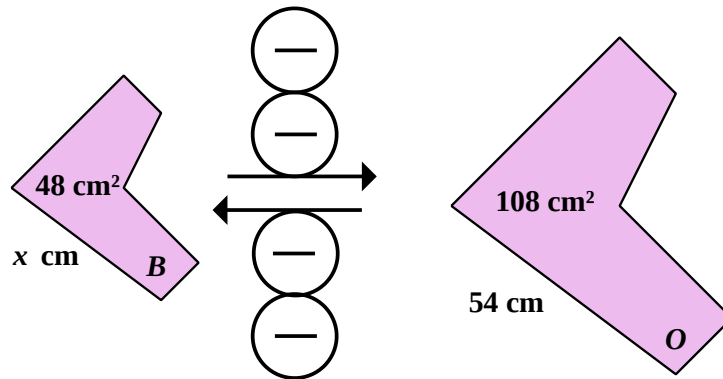
[3 marks]

Question 10

Rectangles K and A are similar.
Find the length marked f

[3 marks]

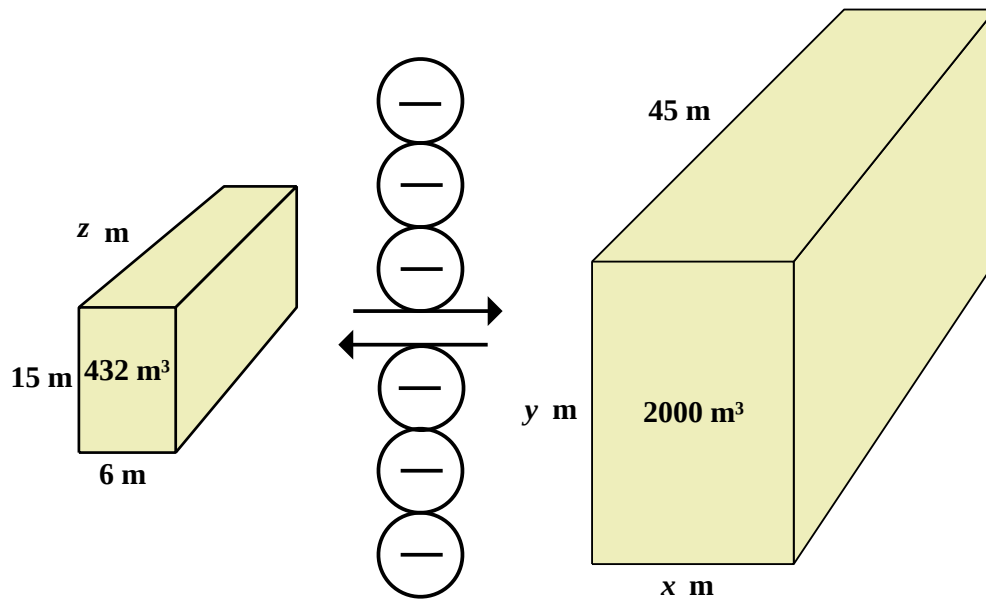
Question 11



The shapes B and O are similar.
Find the length marked x

[3 marks]

Question 12

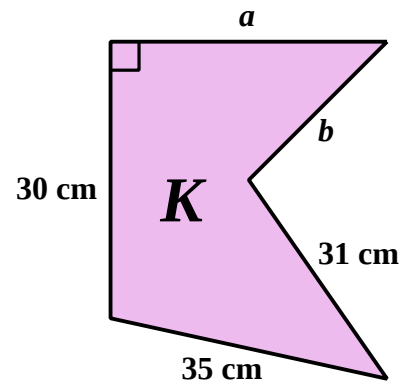
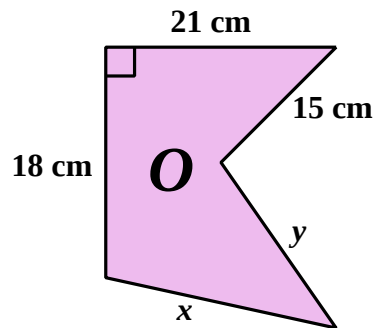


The above two similar cuboids are shown with the same orientation.
Find the lengths marked x , y and z .

[3 marks]

Question 13

Pentagon O is mathematically similar to pentagon K .
Calculate the lengths of the sides marked a , b , x , and y .

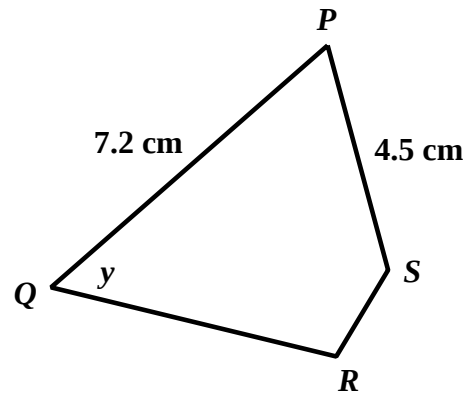
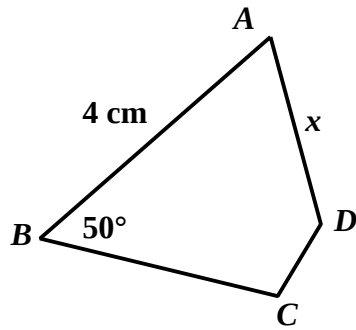


[4 marks]

Question 14

Quadrilaterals $ABCD$ and $PQRS$ are similar.

Diagram NOT accurately drawn



AB corresponds to PQ .

BC corresponds to QR .

CD corresponds to RS .

Find the value of

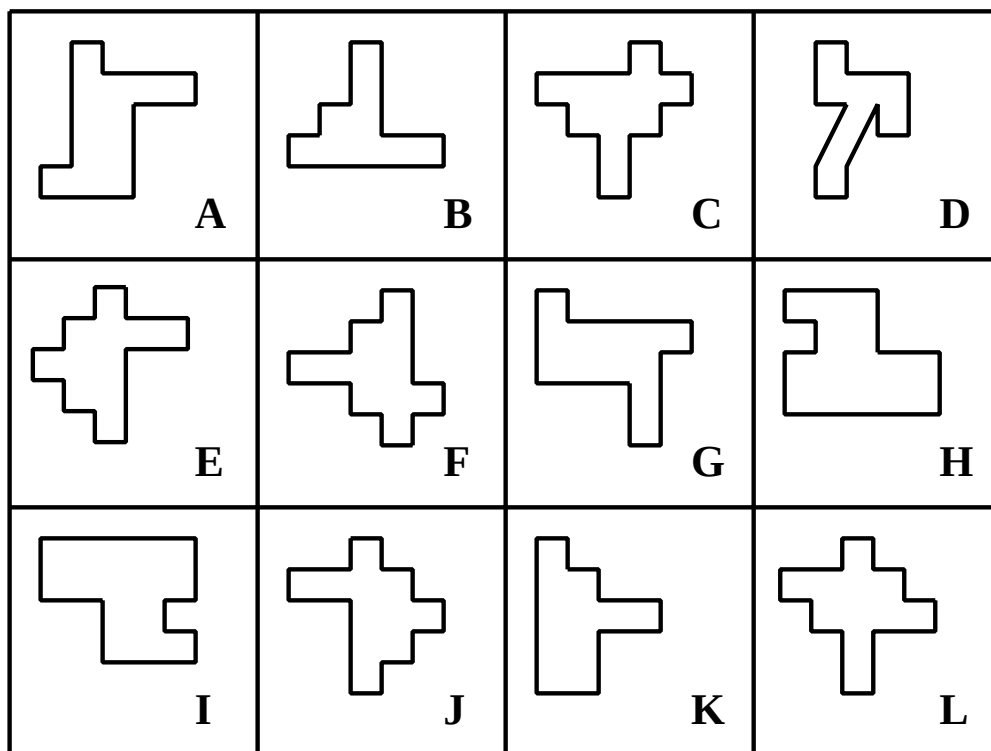
(a) x ,

(b) y ,

[3 marks]

Question 15

For the following shapes, shade in those that are ***directly congruent*** in one colour and, in a different colour, those that are ***indirectly congruent***.



[6 marks]

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