

Lesson 4

GCSE Mathematics Ratio and Similarity

Non Calculator

Time : 5 minutes

4.1 Start Up

Cancel down these fractions as far as possible by repeated division of the numerator and denominator by 2, 3, 5 or 10.

(i) $\frac{10}{4}$

(ii) $\frac{55}{15}$

(iii) $\frac{21}{12}$

(iv) $\frac{50}{100}$

(v) $\frac{300}{40}$

(vi) $\frac{125}{20}$

(vii) $\frac{180}{100}$

(viii) $\frac{39}{24}$

(ix) $\frac{27}{21}$

(x) $\frac{35}{25}$

(xi) $\frac{180}{100}$

(xii) $\frac{72}{20}$

(xiii) $\frac{600}{480}$

(xiv) $\frac{640}{220}$

(xv) $\frac{102}{84}$

(xvi) $\frac{520}{360}$

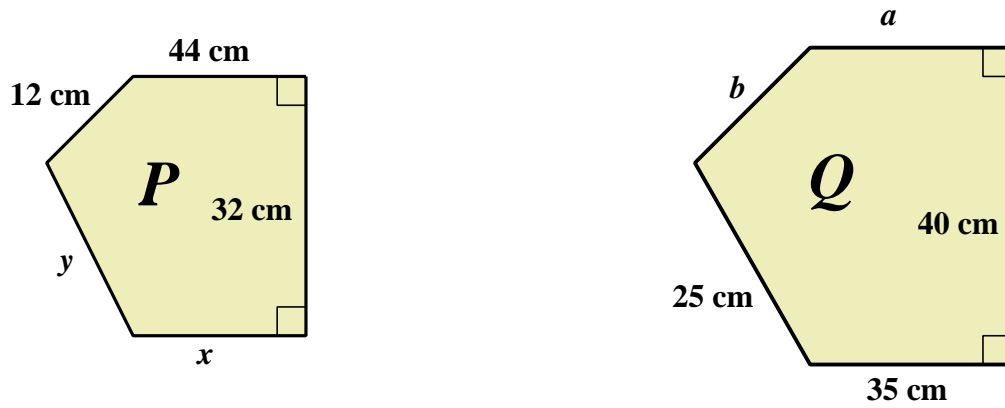
[16 marks]

If you got all 16 correct, have a bonus mark !

[1 mark]

4.2 Exam Style Questions involving Length Scale Factor

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



[4 marks]

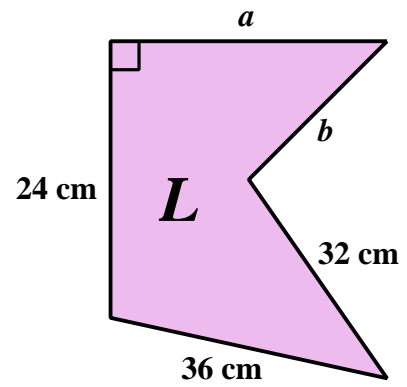
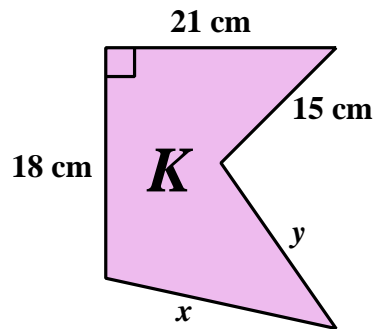
4.3 Exercise

Marks Available : 27

Question 1

Pentagon K is mathematically similar to pentagon L .

Calculate the lengths of the sides marked a , b , x , and y .

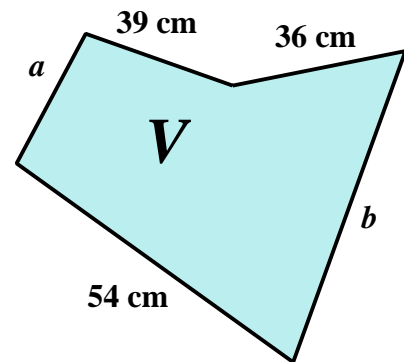
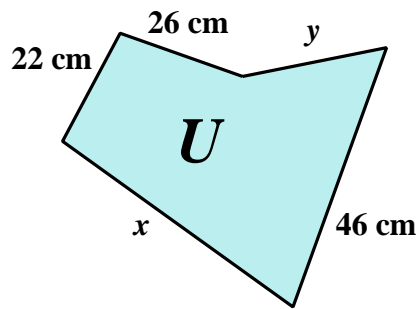


[4 marks]

Question 2

Pentagon U is mathematically similar to pentagon V .

Calculate the lengths of the sides marked a , b , x , and y .

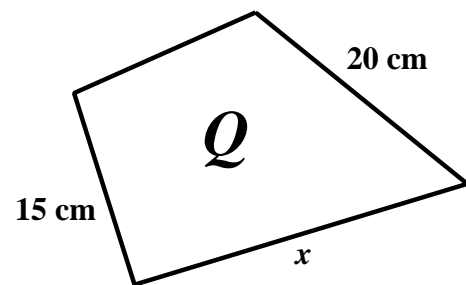
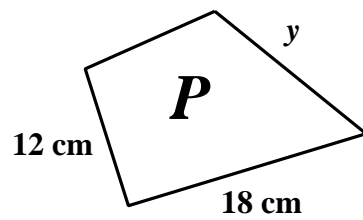


[4 marks]

Question 3

You may use a calculator

Diagram NOT accurately drawn



Quadrilateral P is mathematically similar to quadrilateral Q .

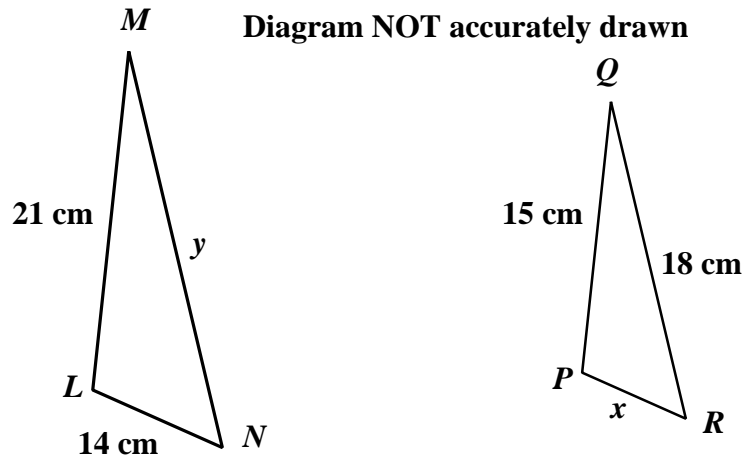
- (a) Calculate the value of x .
- (b) Calculate the value of y .

[4 marks]

Question 4

You may use a calculator

Here are two similar triangles.



LM corresponds to PQ .

MN corresponds to QR .

- (a) Find the value of x .
- (b) Find the value of y .

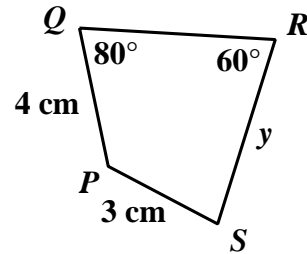
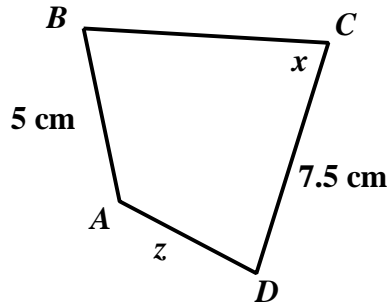
[4 marks]

Question 5

You may use a calculator

$ABCD$ and $PQRS$ are two similar quadrilaterals.

Diagram NOT accurately drawn



AB corresponds to PQ .

BC corresponds to QR .

CD corresponds to RS .

Find the value of

(a) x ,

(b) y ,

(c) z .

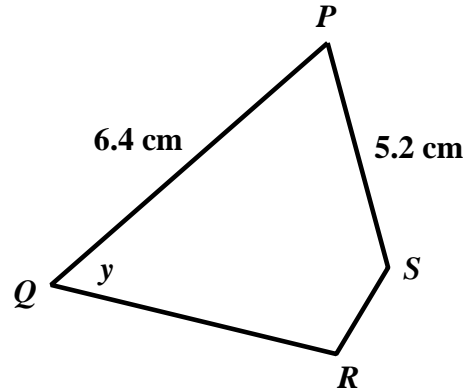
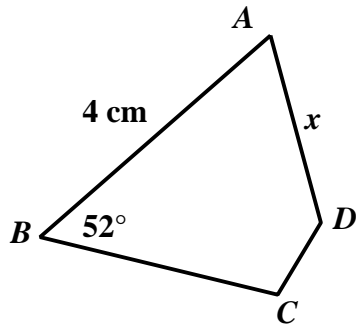
[5 marks]

Question 6

You may use a calculator

Quadrilaterals $ABCD$ and $PQRS$ are similar.

Diagram NOT accurately drawn



AB corresponds to PQ .

BC corresponds to QR .

CD corresponds to RS .

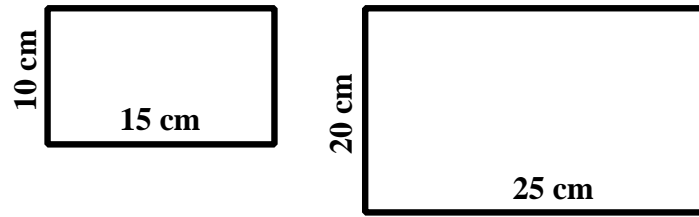
Find the value of

(a) x ,

(b) y ,

[3 marks]

Question 7



Are the two rectangles mathematically similar ?

Tick (✓) the appropriate box.

You must show working to justify your answer.

Yes

☐

No

☐

[3 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com