1.3 Homework

Marks Available : 20

Question 1

What is the **length scale factor** of the enlargement that generates a line of length 12 cm from one of length 16 cm ?

[1 mark]

Question 2

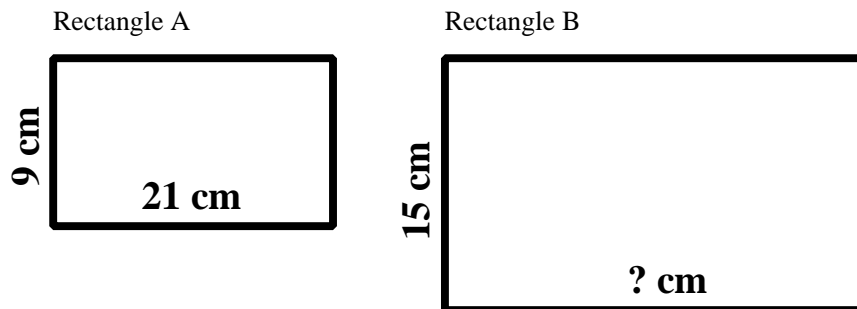Two lines have lengths in the ratio of 3 : 8.
The shorter line is of length 15cm.
What is the length of the longer line ?

[1 mark]

Question 3

Two shapes are *similar* if they are of the same *shape* although not necessarily the same *size*.

Two similar rectangles, *A* and *B*, are shown below.

Rectangle A   Rectangle B

9 cm

21 cm

15 cm

? cm

(**i**) What is the **length scale factor** of the similarity, *B* from *A* ?
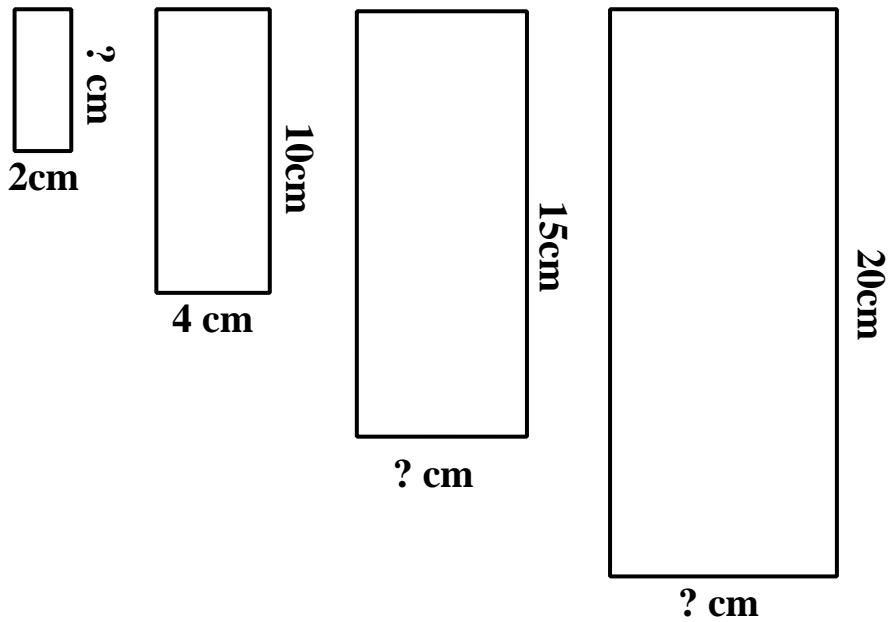
[1 mark]

(**ii**) What is the length of the side marked with a question mark ?

[1 mark]

Question 4

The four rectangles shown below are all similar to each other.
Find the lengths marked with a question mark.

[3 marks]

Question 5

Two rectangles are similar with length scale factor $\frac{11}{2}$.
The smaller rectangle measures 10 cm by 6 cm.
What are the measurements of the larger rectangle ?

[2 marks]

Question 6

A larger rectangle is $\frac{9}{7}$ times bigger than a smaller, similar rectangle.

The smaller rectangle measures 21 cm by 28 cm.
What are the measurements of the larger rectangle ?

[2 marks]

Question 7

An Investigation
Complete the following table without the use of any decimal fractions.
lsf = length scale factor.
asf = area scale factor.

Rectangle *A* length × breadth	Rectangle *B* length × breadth	Area *A*	Area *B*	*lsf* *B* from *A*	*asf* *B* from *A*
4 × 8	6 × 12				
3 × 9	4 × 12				
10 × 20	15 × 30				
20 × 20	50 × 50				
8 x 4	10 × 5				
6 × 9	8 × 12				

There is an important connection between an **area scale factor** and the **length scale factor** for the same pair of similar shapes**.**
Can you guess what this might be ?

[9 marks]