

Name: \_\_\_\_\_

Exam Style Questions



Similar Shapes: Sides

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

### Guidance

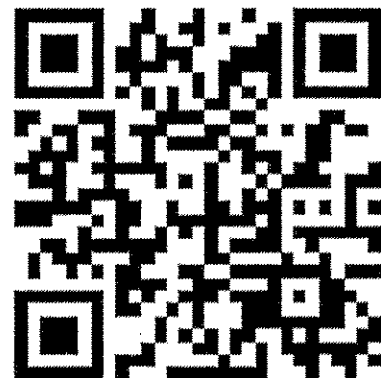
1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)

Video 292

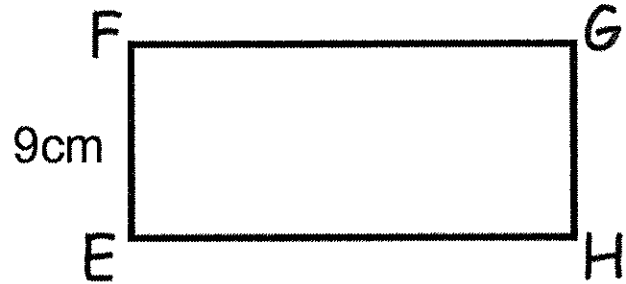
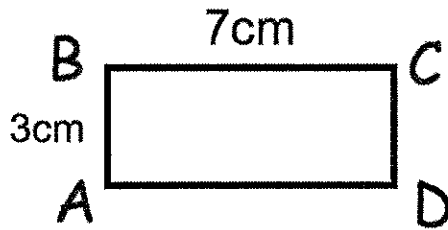
Video 294



1.



Not drawn accurately



Rectangles  $ABCD$  and  $EFGH$  are similar.

$$AB = 3\text{cm}$$

$$BC = 7\text{cm}$$

$$EF = 9\text{cm}$$

Work out the length of  $FG$ .

$$\text{Scale factor} = 9 \div 3 = 3$$

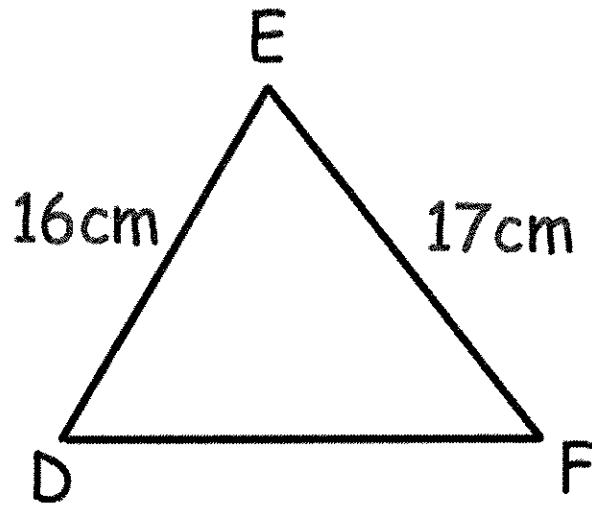
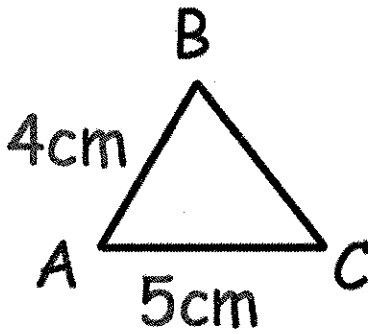
$$7 \times 3 = 21$$

.....21.....cm  
(2)

2.



Not drawn  
to scale



Triangles ABC and DEF are similar.

AB = 4cm  
AC = 5cm  
DE = 16cm  
EF = 17cm.

$$\text{Scale factor} = 16 \div 4 = 4$$

(a) Work out the length of DF.

$$5 \times 4$$

$$\dots\dots\dots 20 \dots\dots\dots \text{cm}$$

(2)

(b) Work out the length of BC.

$$17 \div 4 =$$

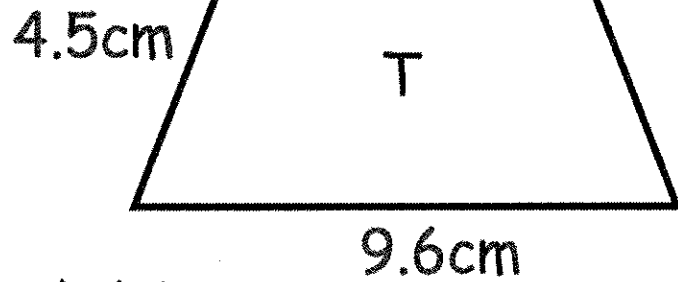
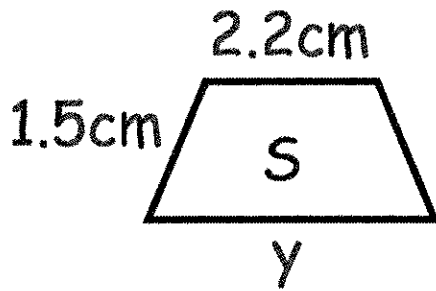
$$\dots\dots\dots 4.25 \dots\dots\dots \text{cm}$$

(2)

3. Trapezium S and trapezium T are similar.



Not drawn accurately



$$\text{Scale factor} = 4.5 \div 1.5 = 3$$

(a) Find the size of x.

$$2.2 \times 3$$

..... 6.6 .....cm  
(2)

(b) Find the size of y.

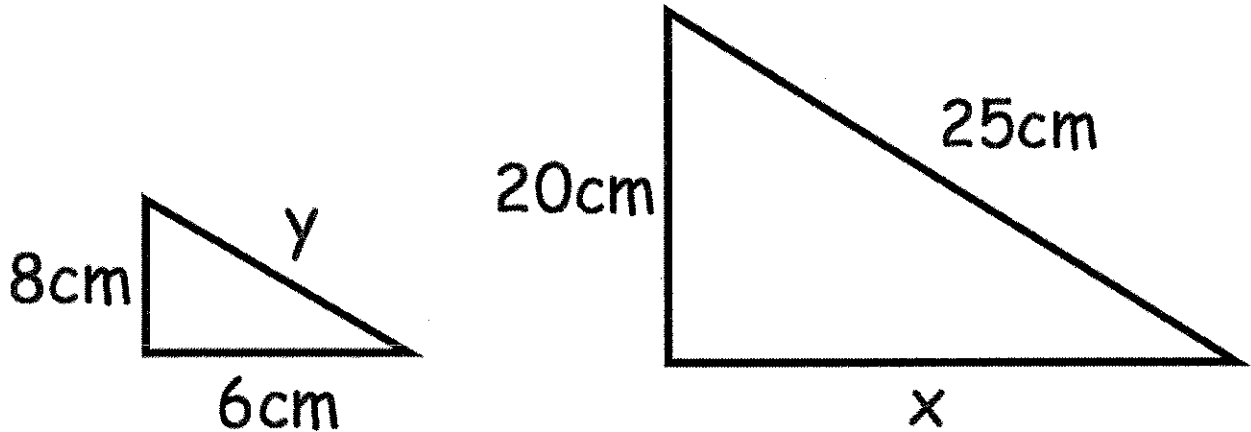
$$9.6 \div 3 =$$

..... 3.2 .....cm  
(2)

4. Shown below are two similar triangles.



Not drawn accurately



Scale factor =  $20 \div 8 = 2.5$

(a) Find the size of x.

$6 \times 2.5$

.....15.....cm  
(2)

(b) Find the size of y.

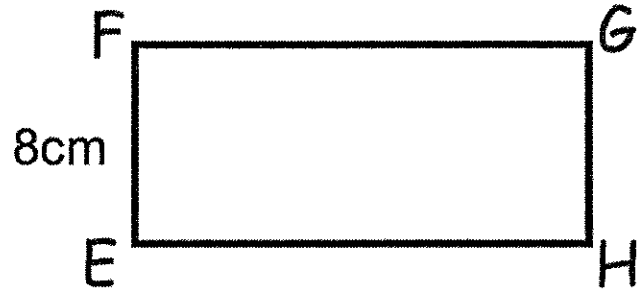
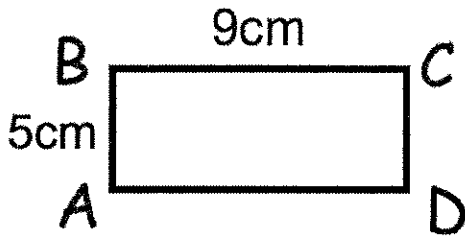
$25 \div 2.5$

.....10.....cm  
(2)

5.



Not drawn accurately



Rectangles  $ABCD$  and  $EFGH$  are similar.

$$AB = 5\text{cm}$$

$$BC = 9\text{cm}$$

$$EF = 8\text{cm}$$

Work out the length of  $FG$ .

$$\text{Scale factor} = 8 \div 5 = 1.6$$

$$9 \times 1.6 = 14.4$$

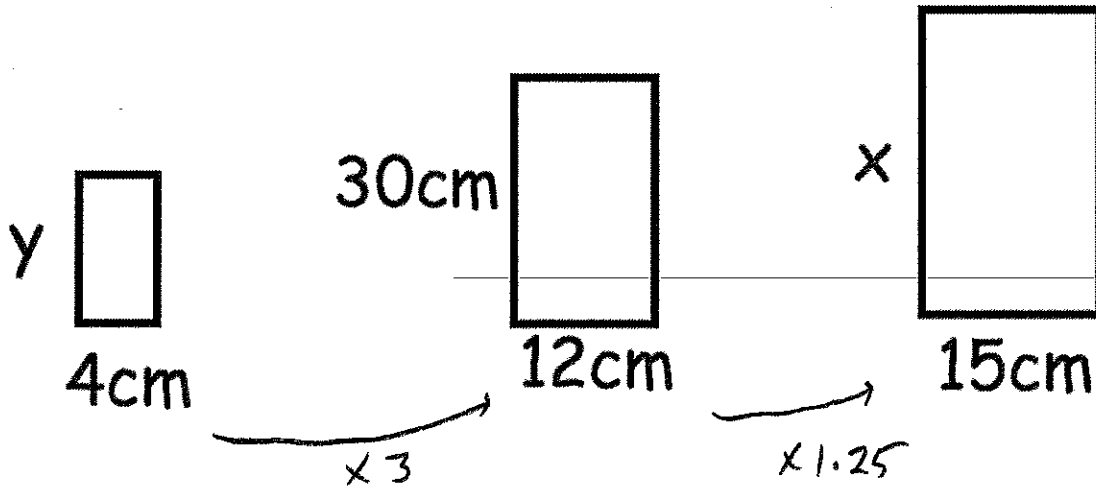
$$\dots\dots\dots 14.4 \dots\dots\dots \text{cm}$$

(2)

6. The diagram shows three similar rectangles.



Not drawn accurately



(a) Work out the value of x.

$$30 \times 1.25$$

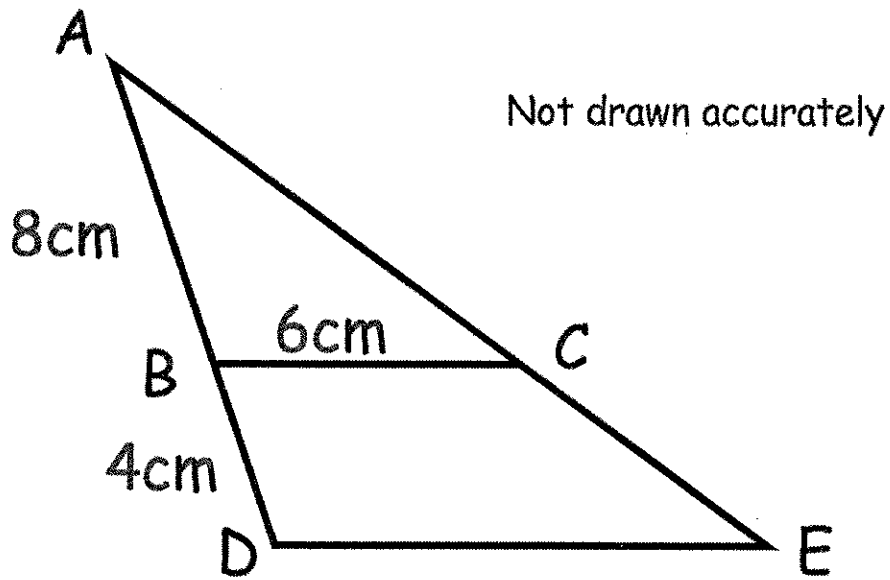
$$\begin{array}{r} 37.5 \\ \hline \end{array} \text{cm} \\ (2)$$

(b) Work out the value of y.

$$30 \div 3$$

$$\begin{array}{r} 10 \\ \hline \end{array} \text{cm} \\ (2)$$

7.



Triangle  $ABC$  is similar to triangle  $ADE$ .

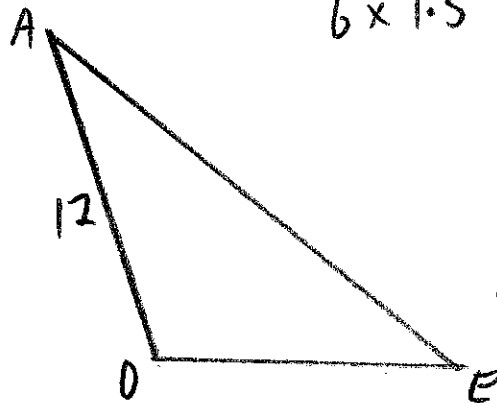
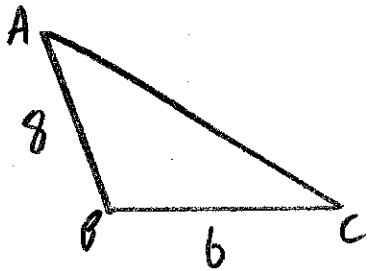
$$AB = 8\text{cm}$$

$$BC = 6\text{cm}$$

$$BD = 4\text{cm}$$

$$\text{Scale factor} = 12:8 = 1.5$$

Work out the length of  $DE$ .



$$6 \times 1.5 = 9$$

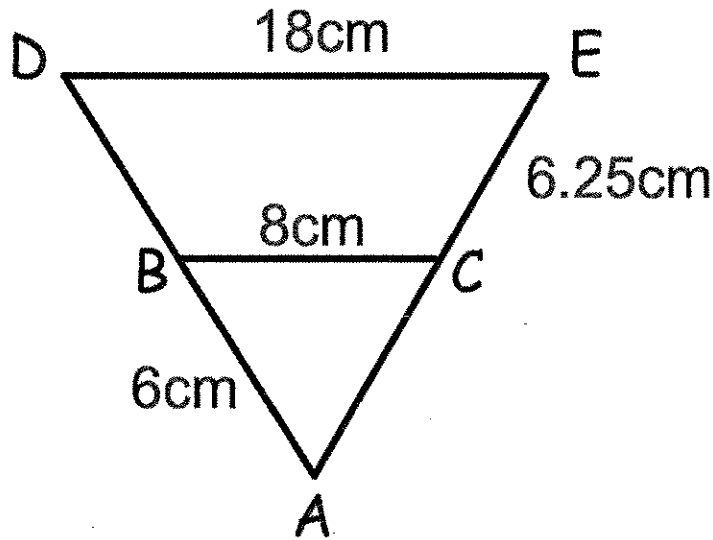
..... $9$ .....cm  
(3)



8.

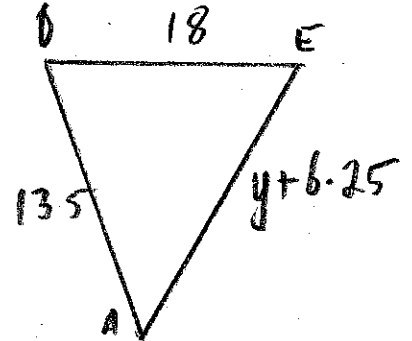
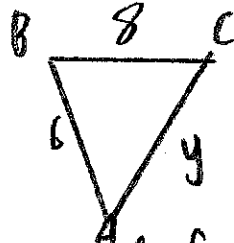


Not drawn accurately



Triangle  $ABC$  is similar to triangle  $ADE$ .

- $AB = 6\text{cm}$
- $BC = 8\text{cm}$
- $CE = 6.25\text{cm}$
- $DE = 18\text{cm}$



Scale factor =  $18 \div 8 = 2.25$

(a) Work out the length of  $DB$ .

$$AD = 6 \times 2.25 = 13.5$$

$$13.5 - 6 = 7.5$$

..... 7.5 .....cm  
(3)

(b) Work out the length of  $AC$ .

$$y \times 2.25 = y + 6.25$$

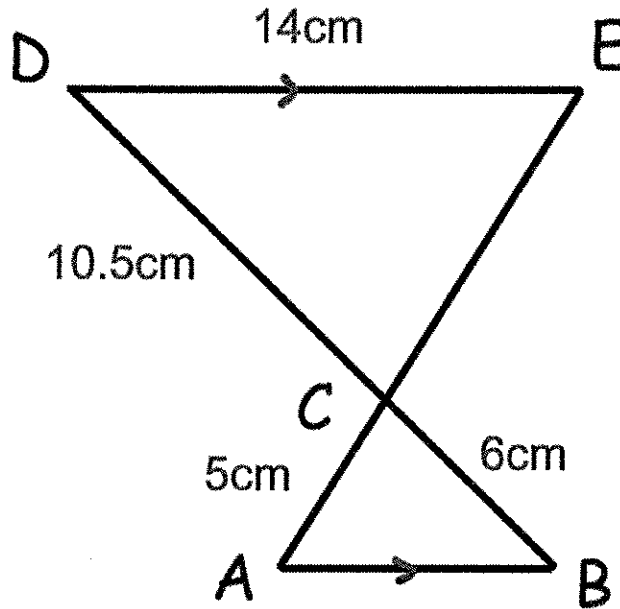
$$2.25y = y + 6.25$$

$$1.25y = 6.25$$

$$y = 5$$

..... 5 .....cm  
(3)

9.



ACE and BCD are straight lines.  
DE is parallel to AB.

$$\text{Scale factor} = 10.5 \div 6 \\ = 1.75$$

(a) Work out the size of CE.

$$5 \times 1.75$$

$$\begin{array}{r} 8.75 \\ \hline \end{array} \text{cm} \\ (3)$$

(b) Work out the size of AB.

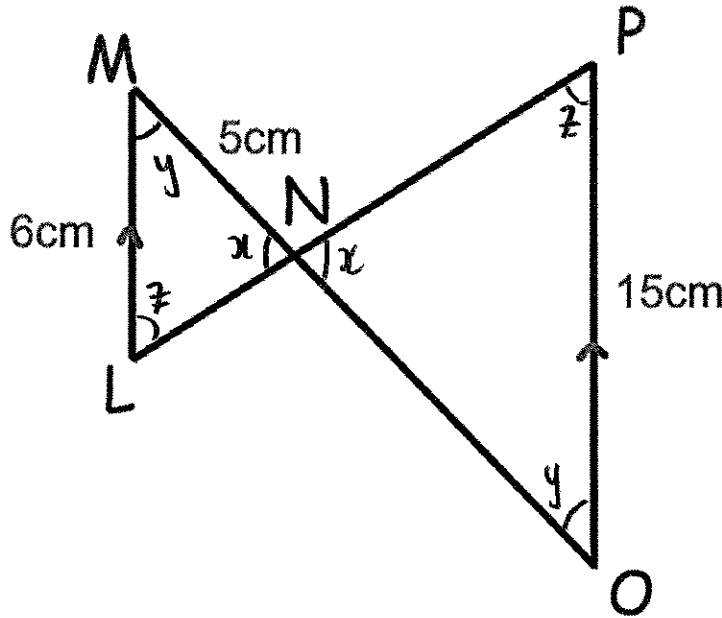
$$14 \div 1.75$$

$$\begin{array}{r} 8 \\ \hline \end{array} \text{cm} \\ (3)$$

10. MNO and LNP are straight lines.  
LM and OP are parallel.



Not drawn accurately



- (a) Explain why triangles LMN and NOP are similar  
Give clear reasons for each statement you make.

$$\angle MNL = \angle ONP \text{ (vertically opposite)}$$

$$\angle LMN = \angle NOP \text{ (alternate angles)}$$

$$\angle MLN = \angle NPO \text{ (alternate angles)}$$

Since AAA, must be similar.

(3)

- (b) Work out the length of MO.

$$\text{Scale factor} = 15 \div 6 = 2.5$$

$$NO = 5 \times 2.5 = 12.5$$

$$MO = 5 + 12.5$$

17.5

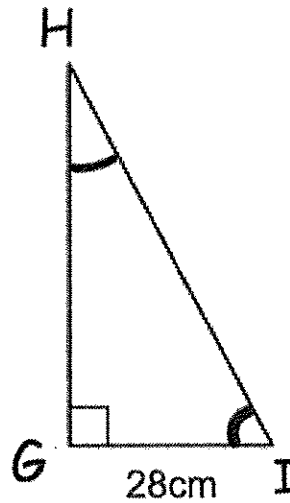
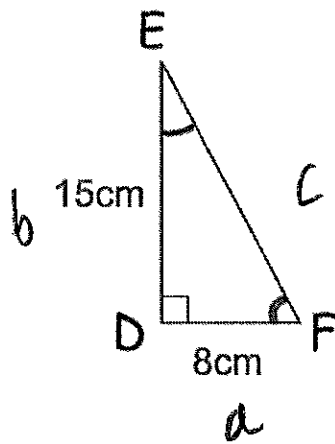
cm

(3)

11.



Not drawn to scale



DEF and GHI are similar right angled triangles.

$$DE = 15\text{cm}$$

$$DF = 8\text{cm}$$

$$GI = 28\text{cm}$$

$$\begin{aligned} \text{Scale factor} &= 28 \div 8 \\ &= 3.5 \end{aligned}$$

Work out the length of HI

$$EF^2 = DE^2 + DF^2$$

$$EF^2 = 15^2 + 8^2$$

$$EF^2 = 289$$

$$EF = 17$$

$$HI = 17 \times 3.5$$

59.5 cm

(5)