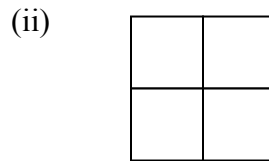
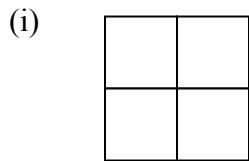


Q1 Describe the symmetry properties of a rhombus. [2]

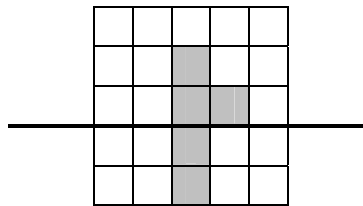
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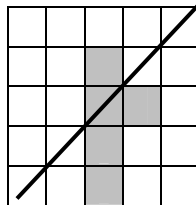
Q2 In the diagram, shade two of the small squares so that  
(i) the figure has 2 lines of symmetry, [1]  
(ii) the figure has 1 line of symmetry. [1]



Q3(a) Shade in 1 more square to make a shape which has the line as a line of symmetry. [1]



(b) Shade in 2 more squares to make a shape that has the line as a line of symmetry. [1]



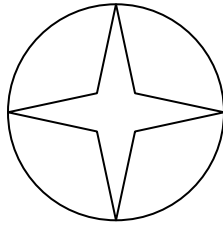
Q4 Write down the order of rotational symmetry for the following. [2]

(a)



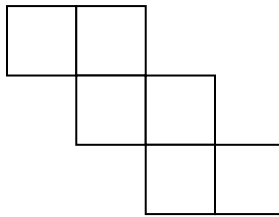
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(b)



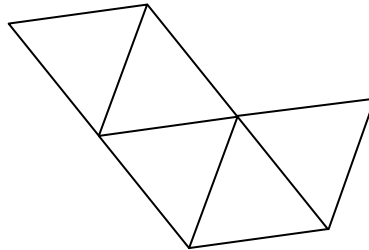
Q5(a) Add one square to the given diagram below so that there is exactly one line of symmetry. Show clearly also the line of symmetry.

[2]



(b) Add one equilateral triangle to the figure below so that the resulting figure has rotational symmetry.

[1]



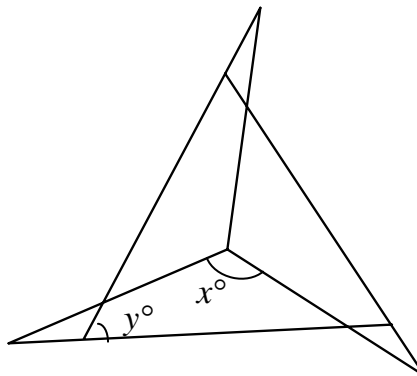
Q6 The figure below has rotational symmetry of order  $r$ . Find the values of

(a)  $r$ ,

(b)  $x$ ,

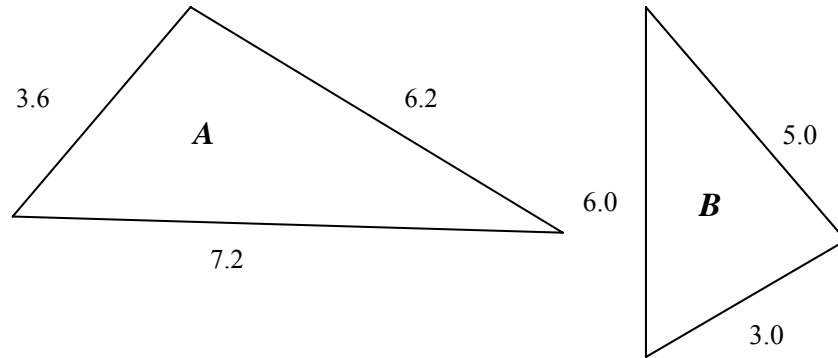
(c)  $y$ .

[3]

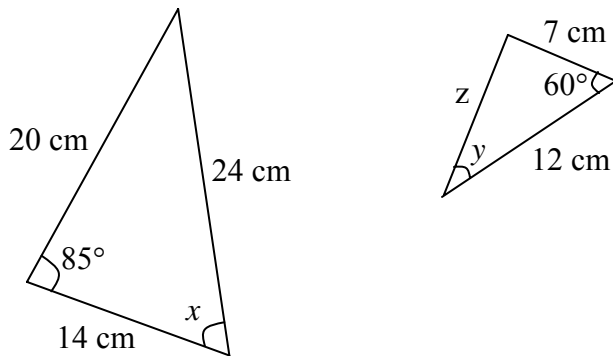


$$r = \underline{\hspace{2cm}}, x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}$$

Q7 Are the two triangles below similar? Explain. [3]

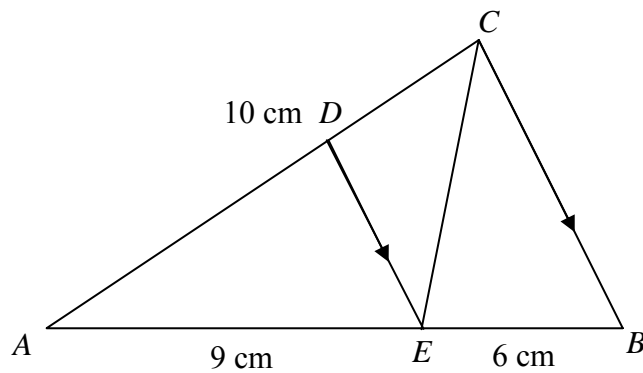


Q8 Two similar triangles are shown below. Find the values of  $x$ ,  $y$  and  $z$ . [3]



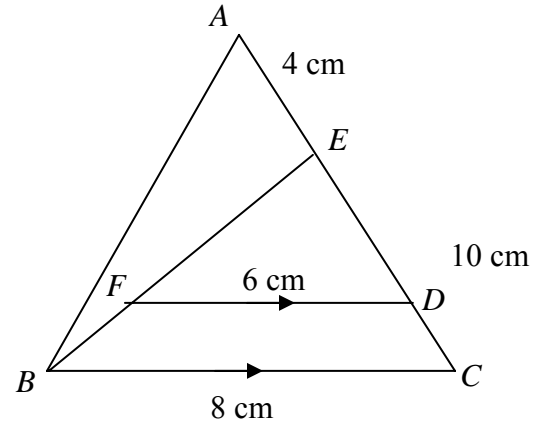
$$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}, z = \underline{\hspace{2cm}}$$

Q9 In the figure below,  $BC$  is parallel to  $DE$ ,  $AC = 10$  cm,  $AE = 9$  cm and  $EB = 6$  cm.

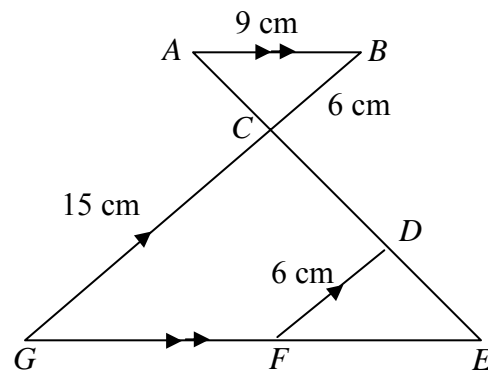


- (i) Name a pair of similar triangles. [1]  
(ii) Find the length of  $CD$ . [2]

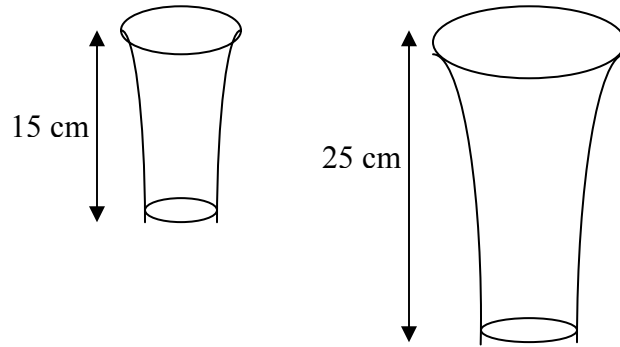
- Q10 In the diagram below,  $BFE$  and  $CDEA$  are straight lines and  $BC$  is parallel to  $FD$ .  
(a) Name a pair of similar triangles. [1]  
(b) Given that  $BC = 8$  cm,  $CE = 10$  cm,  $AE = 4$  cm and  $FD = 6$  cm, calculate the length of  $CD$ . [2]  
(c) Find the ratio of the area of  $\triangle FED$  : area of  $\triangle BEC$ . [1]



- Q11 In the diagram below,  $GB \parallel FD$ ,  $AB \parallel GE$ ,  $AB = 9$  cm,  $BC = FD = 6$  cm and  $GC = 15$  cm.  
(a) Name two pairs of similar triangles. [2]  
(b) Find the ratio  $ED : DC$ . [1]  
Given further that the area of  $\triangle FED = 10$  cm<sup>2</sup>,  
(c) find the area of quadrilateral GFDC. [2]



Q12



The two containers shown above are geometrically similar, with heights 15 cm and 25 cm respectively.

- (i) The top of the smaller container has a circumference of 12 cm. Find the circumference of the top of the larger container. [1]
- (ii) Both containers are completely filled with wine. Given that the larger container holds  $700 \text{ cm}^3$  of wine, find the volume of wine that the smaller container holds. [2]

Q13 Two glasses are geometrically similar. The circumference of the smaller glass is 24 cm and the circumference of the larger glass is 30 cm.

- (a) Given that the height of the larger glass is 10 cm, find the height of the smaller glass. [1]
- (b) Both glasses are completely filled with fruit juice. The weight of the smaller glass when filled with fruit juice is 640 g. Find the weight of the larger glass when filled with fruit juice. [2]

Q14 Given that  $\triangle ABC$  is similar to  $\triangle AYZ$ , find the value of  $x$  and of  $y$ . [2]

