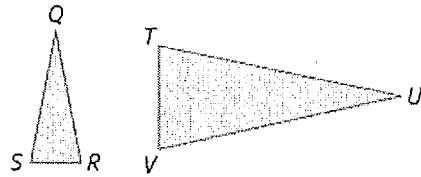


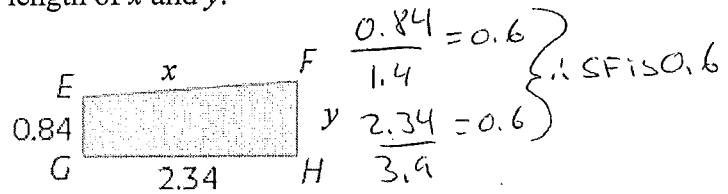
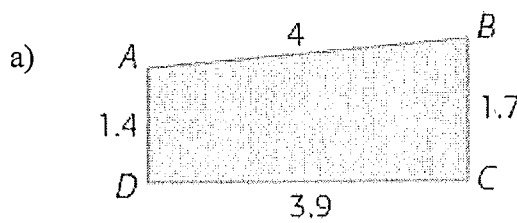
1. List the corresponding sides and angles in these similar polygons.



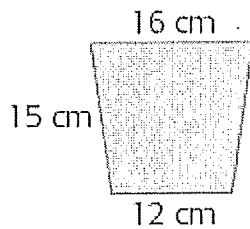
SR - TV  
QS - UT  
QR - UV  
(Sides)

$\angle S$  corresponds to  $\angle T$   
 $\angle Q$  " to  $\angle U$   
 $\angle R$  " to  $\angle V$

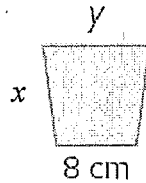
2. Given the similar figures below, calculate the length of  $x$  and  $y$ .



- b)



SF =  $\frac{8}{12} = 0.66$

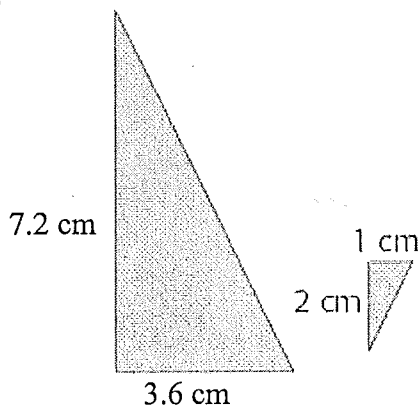


$x = \text{side AB} \times \text{SF} = 16 \times 0.66 = 10.6$   
 $y = \text{side BC} \times \text{SF} = 1.7 \times 0.6 = 1.02$

$y = 16 \times \text{SF} = 10.6$  or  $\frac{32}{3}$   
 $x = 15 \times \text{SF} = 10$

3. Determine the scale factor for each pair of similar figures below.

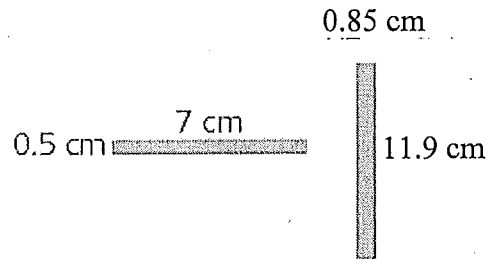
- a)



SF =  $\frac{1 \text{ cm}}{3.6 \text{ cm}} = 0.27$  or  $\approx 0.28$

or SF =  $\frac{2 \text{ cm}}{7.2 \text{ cm}} = 0.27$  or  $\approx 0.28$

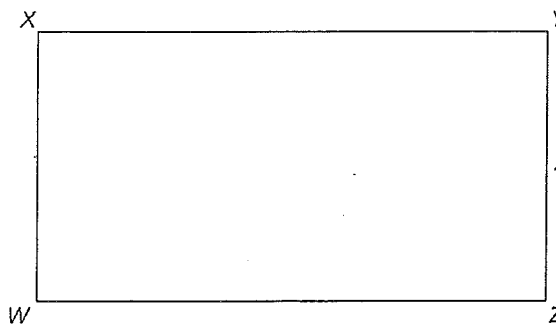
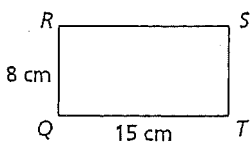
- b)



SF =  $\frac{0.85}{0.5} = 1.7$   
or

SF =  $\frac{11.9 \text{ cm}}{7 \text{ cm}} = 1.7$

4. a) Quadrilateral X is similar to quadrilateral Y. Quadrilateral X has a side that is 15 cm long. The corresponding side in quadrilateral Y is 52.5 cm long. What is the scale factor?  $SF = \frac{52.5\text{cm}}{15\text{cm}} = 3.5$
- b) Quadrilateral X also has a side that measures 20 cm. How long is the corresponding side of quadrilateral Y?  $3.5 \times 20 = 70\text{cm}$
- c) Quadrilateral X has an angle that measures  $80^\circ$ . What is the measurement of the corresponding angle in quadrilateral Y?  $80^\circ$
5. The ratio of lengths of corresponding sides in rectangles  $QRST$  and  $WXYZ$  is 1:3.4. What are the dimensions of  $WXYZ$ ?



$$XW = 8\text{cm} \times SF$$

$$= 8\text{cm} \times 3.4$$

$$= 27.2\text{cm}$$

$$WZ = 15\text{cm} \times SF$$

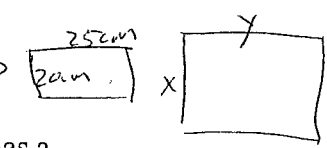
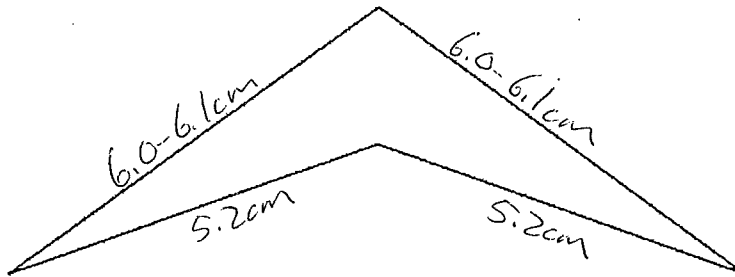
$$= 15\text{cm} \times 3.4$$

$$= 51\text{cm}$$

Dimensions are 27.2cm x 51cm

6. Measure the following shape, then
- 7.

- a) draw a similar figure with a scale factor of 125%. multiply each side by 1.25 & use same angles
- b) draw a similar figure with a scale factor of 0.6. multiply each side by 0.6 & use same angles



8. On a blueprint, a bedroom has dimensions of 20cm by 25cm. The blueprint has a scale factor of 1:20. What is actual area of the bedroom?

$$x = 20 \times SF$$

$$= 20 \times 20$$

$$= 400\text{cm or } 4\text{m}$$

$$y = 25\text{cm} \times SF$$

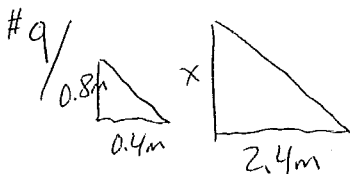
$$= 25\text{cm} \times 20$$

$$= 500\text{cm or } 5\text{m}$$

$$\text{area} = 4\text{m} \times 5\text{m}$$

$$= 20\text{m}^2$$

9. A flagpole casts a 2.4 m shadow at the same time that a 0.8 m garden stake casts a 0.4 m shadow. How tall is the flagpole?



$$x = 0.8 \times SF$$

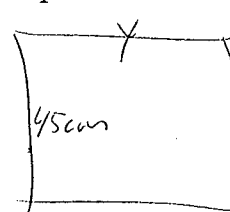
$$= 0.8 \times \frac{2.4}{0.4}$$

$$= 0.8 \times 6$$

$$= 4.8\text{m}$$

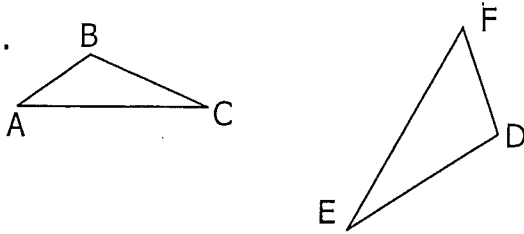
$$y = 20\text{cm} \times \frac{45\text{cm}}{12\text{cm}}$$

$$= 20\text{cm} \times 3.75$$



10. A design that is 12 cm wide by 20 cm long will be enlarged to make a poster 45 cm wide. How long will the poster be?

1.

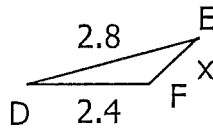
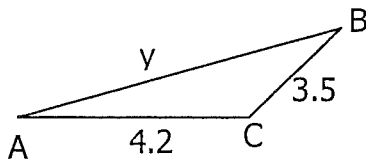


List the pairs of corresponding sides  
List the pairs of corresponding angles

AB corresponds to FE  
BC corresponds to ED  
CA corresponds to DF

$\angle A$  corresponds to  $\angle F$   
 $\angle B$  corresponds to  $\angle E$   
 $\angle C$  corresponds to  $\angle D$

2. Given the similar figures below, calculate the length of x and y.



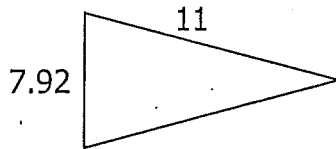
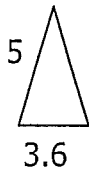
$$SF = \frac{2.4}{4.2} = 0.57 \text{ (when going from big } \Delta \text{ to small } \Delta)$$

$$\begin{aligned} \text{side } x &= 3.5 \times SF \\ &= 3.5 \times 0.57 \\ &= 2 \end{aligned}$$

$$SF = \frac{4.2}{2.4} = 1.75 \text{ (from small to big } \Delta)$$

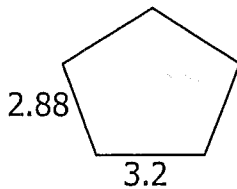
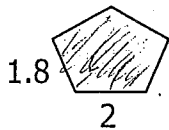
$$\begin{aligned} \text{side } y &= 2.8 \times SF \\ &= 2.8 \times 1.75 \\ &= 4.9 \end{aligned}$$

3. Determine the scale factor for the enlargement.



$$SF = \frac{11}{5} = 2.2 \quad \text{or} \quad SF = \frac{7.92}{3.6} = 2.2$$

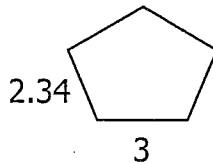
4. Which polygon is similar to the shaded figure? Justify your answer.



$$\frac{2.88}{1.8} = 1.6$$

$$\frac{3.2}{2} = 1.6$$

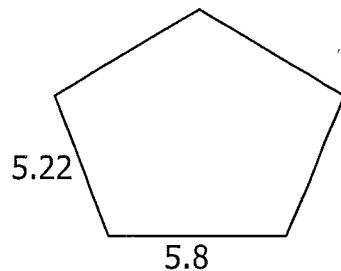
1.6 = 1.6  
Yes, same SF



$$\frac{2.34}{1.8} = 1.3$$

$$\frac{3}{2} = 1.5$$

1.3  $\neq$  1.5  
No, different SF's

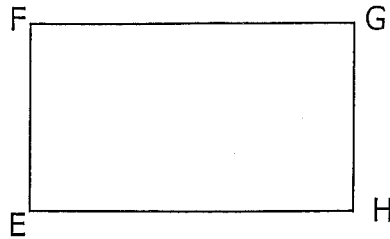
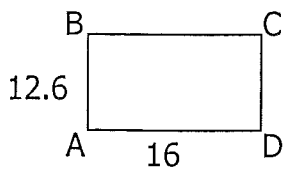


$$\frac{5.22}{1.8} = 2.9$$

$$\frac{5.8}{2} = 2.9$$

2.9 = 2.9  
Yes, same SF's

5. The ratio of corresponding sides in the similar rectangles below is 1: 2.4  
 Determine the length and width of the enlarged rectangle.



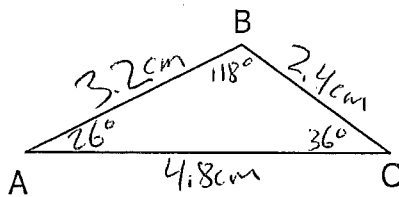
$$EF = 12.6 \times SF$$

$$= 12.6 \times 2.4 = 30.24$$

$$EH = 16 \times SF$$

$$= 16 \times 2.4 = 38.4$$

6. Measure the sides and angles of the following shape.  
 Draw a similar figure with a scale factor of 150%. Show all work.



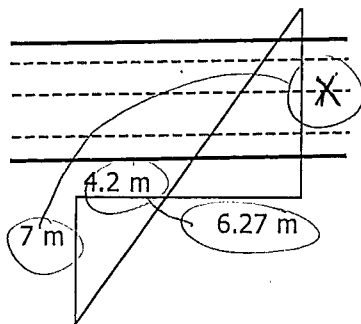
$$AB = 3.2 \times 1.5 = 4.8 \text{ cm}$$

$$BC = 2.4 \times 1.5 = 3.6 \text{ cm}$$

$$AC = 4.8 \times 1.5 = 7.2 \text{ cm}$$

(angles stay the same)

7. This scale diagram shows a surveyor's measurement taken to determine the distance across the river. What is the approximate distance across the river?



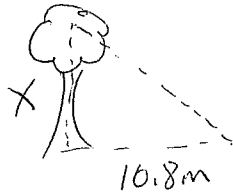
$$\frac{x}{7} = \frac{6.27}{4.2}$$

$$\frac{x}{7} = 1.493$$

$$x = 7 \times 1.493$$

$$x = 10.45 \text{ m}$$

8. A gardener, 1.8 m tall, casts a shadow 4.32 m long. At the same time, a tree casts a shadow 10.8 m long. Find the height of the tree. Sketch and label a diagram. Show your work.

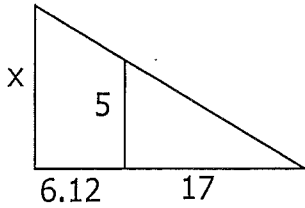


$$\frac{10.8}{4.32} = \frac{x}{1.8}$$

$$2.5 = \frac{x}{1.8}$$

$$x = (2.5)(1.8) = 4.5 \text{ m}$$

9. Calculate the length of x. Show your work.



$$\frac{x}{5} = \frac{23.12}{17}$$

$$\frac{x}{5} = 1.36$$

$$x = (5)(1.36)$$

$$x = 6.8$$

or

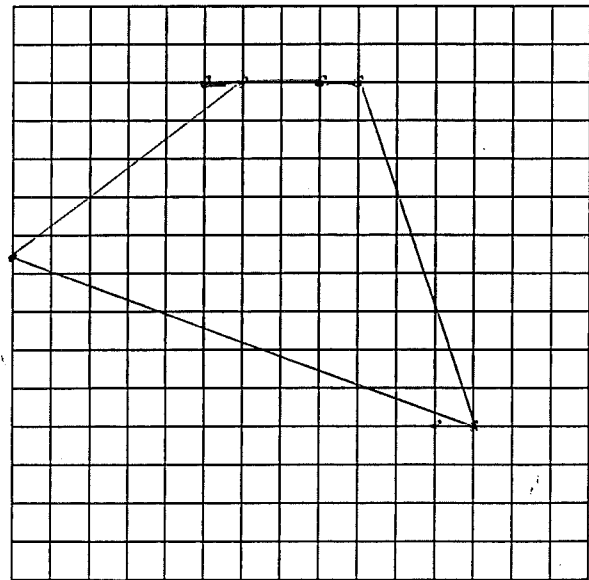
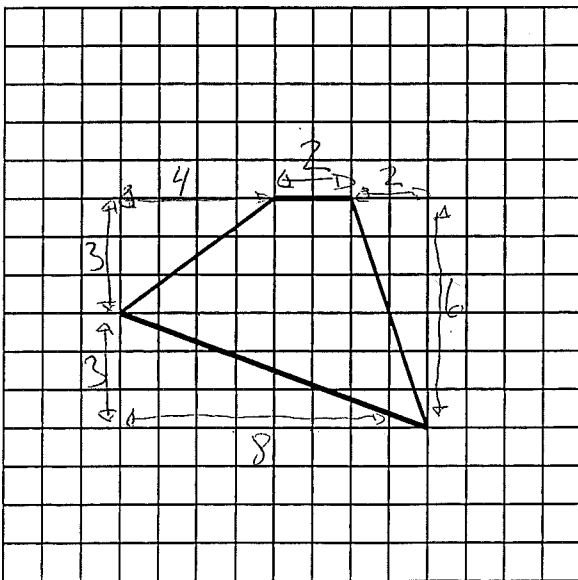
$$SF = \frac{23.12}{17} = 1.36$$

$$x = 5 \times SF$$

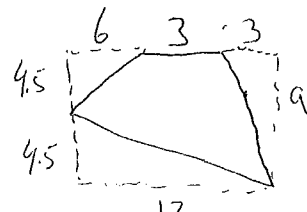
$$= 5 \times 1.36$$

$$= 6.8$$

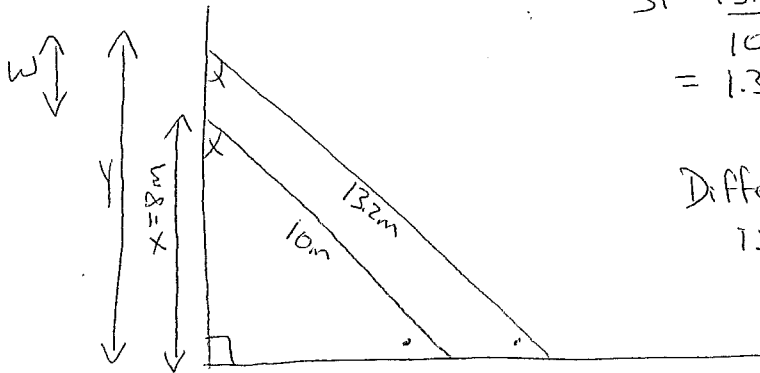
10. Sketch the figure below left at a scale of 150% → multiply each # of squares by 1.5



→ made triangles and counted the number of squares which I multiplied by SF (1.5)



11. Two ladders, one 10 m long and the other 13.2 m long, lean against the same wall at the same angle. If the shorter ladder rests 8 m up the wall, how much higher up the wall does the taller ladder rest? Sketch and label a diagram.

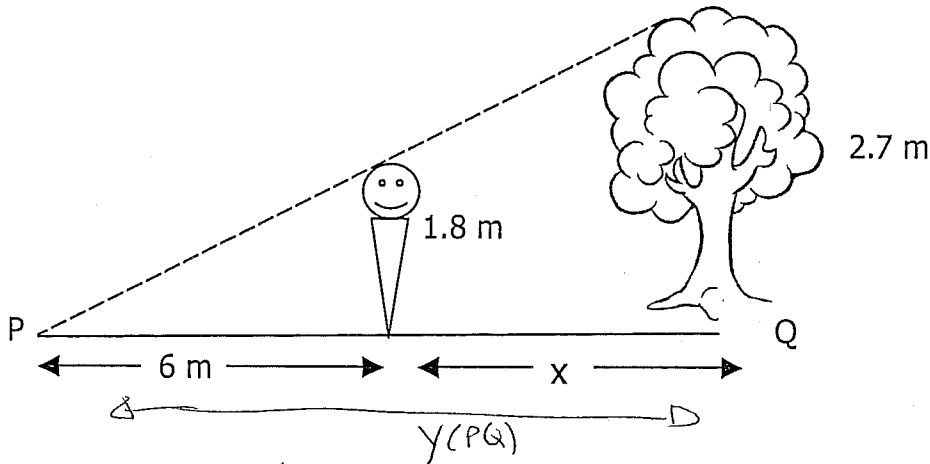


$$SF = \frac{13.2\text{m}}{10\text{m}} = 1.32$$

$$y = 8\text{m} \times SF = 8 \times 1.32 = 10.56\text{m}$$

Difference between height on wall is  $10.56\text{m} - 8\text{m} = 2.56\text{m}$

12. How far is Blake from the tree? Find the length of PQ first



$$SF = \frac{2.7}{1.8} = 1.5$$

Distance from tree is  $9\text{m} - 6\text{m} = \underline{\underline{3\text{m}}}$

$$\begin{aligned} (PQ) \ y &= 6\text{m} \times SF \\ &= 6\text{m} \times 1.5 \\ &= 9\text{m} \end{aligned}$$