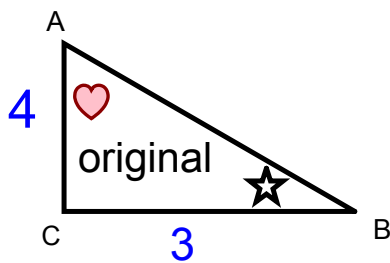
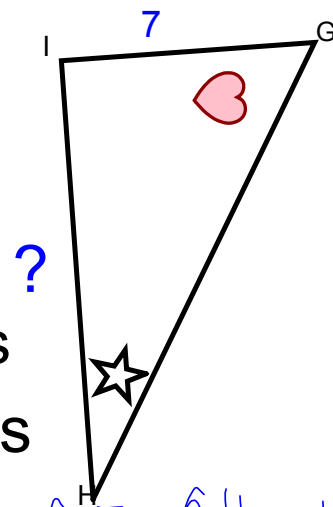


Similar Polygons Chp 7

***Scale Factor=** $\frac{\text{length of enlargement/reduction}}{\text{actual size [original]}}$



$$\begin{aligned} \angle A &= \angle G \\ \angle B &= \angle H \\ \angle C &= \angle I \end{aligned}$$



- 1) List the corresponding angles
- Ratio of corresponding sides
- 3) find the scale factor.

4) Find side HI?

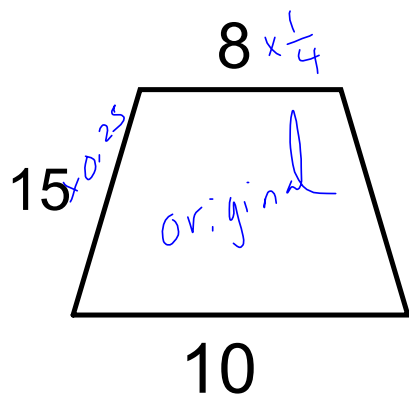
$$\begin{aligned} \frac{HI}{BC} &= \frac{GI}{AC} \\ \frac{HI}{3} &= \frac{7}{4} \\ HI &= 5.25 \end{aligned}$$

$$\begin{aligned} \frac{GI}{AC} &= \frac{HI}{BC} \\ \frac{7}{4} &= \frac{HI}{3} \\ HI &= 1\frac{3}{4} \text{ (1.75) SF.} \end{aligned}$$

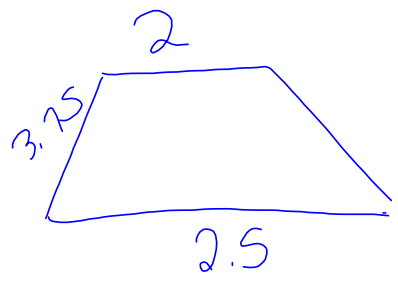
A. Sketch a diagram that is $\frac{1}{4}$ the size of the original

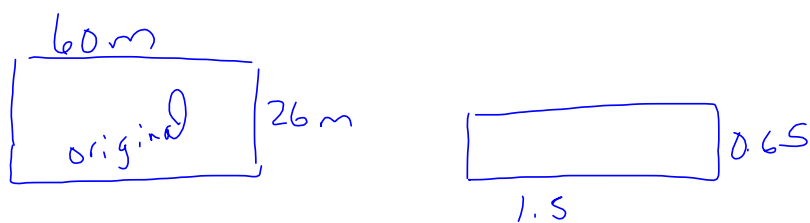
0.25

B. Is this a reduction or enlargement?



New Measurement = S.F x original





$$\text{Scale Factor} = \frac{\text{long}}{\text{long}} = \frac{\text{short}}{\text{short}}$$

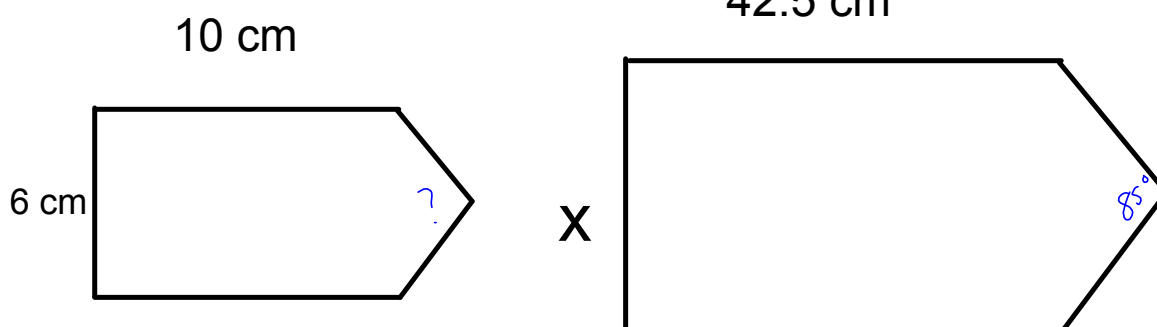
$$\frac{1.5}{60} = \frac{0.65}{26} \leftarrow \text{original}$$

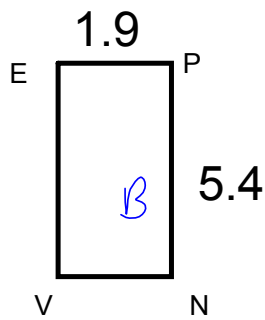
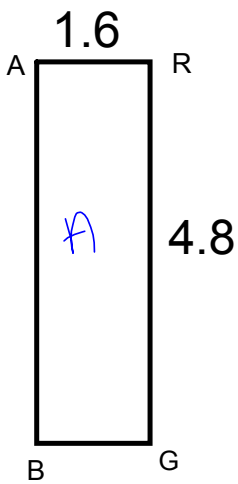
$$0.025 = 0.025$$

These polygons are similar
Solve for x

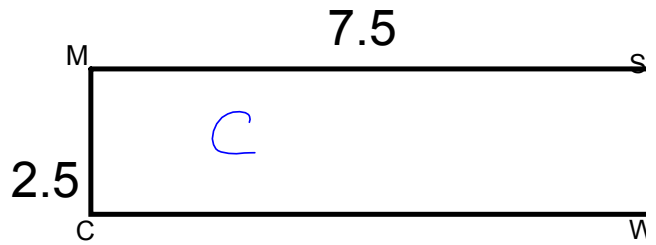
$$\frac{x}{6} = \frac{42.5}{10}$$

$$x = 25.5 \text{ cm}$$





Are these Rectangles similar?



	$\frac{\text{Long}}{\text{Long}}$	$\frac{\text{Short}}{\text{Short}}$	
$\frac{A}{B}$	$\frac{4.8}{5.4} = 0.8$	$\frac{1.6}{1.9} = 0.84$	NO
$\frac{B}{C}$	$\frac{5.4}{7.5} = 0.72$	$\frac{1.9}{2.5} = 0.76$	NO
$\frac{C}{A}$	$\frac{7.5}{4.8} = 1.56$	$\frac{2.5}{1.6} = 1.56$	Yes

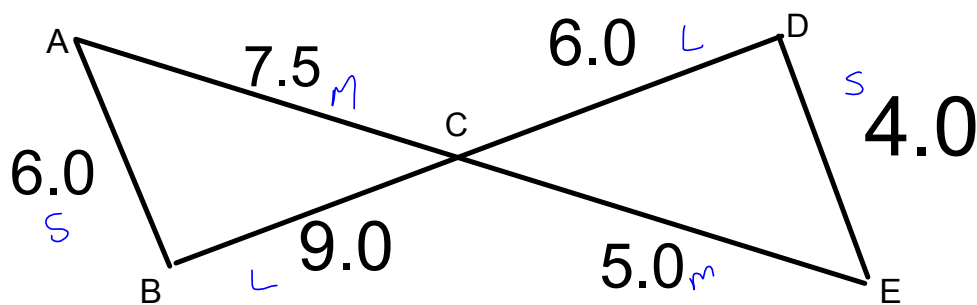
Similar Triangles

Triangles are a special polygon.

1. The measures of corresponding angles must be equal

OR

2. The ratios of the lengths of corresponding sides must be equal



Ratio of corresponding sides

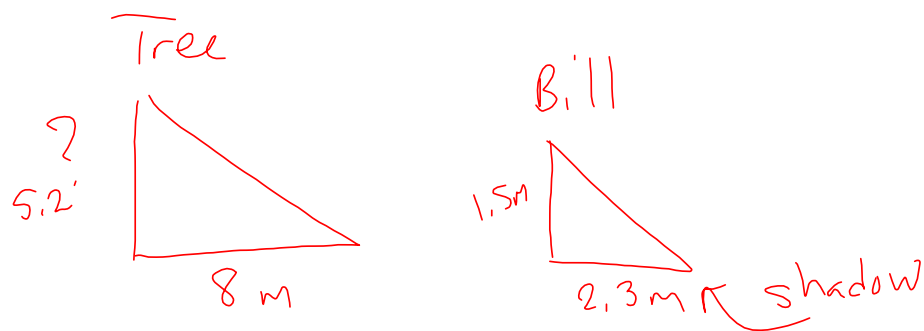
$$\frac{AB}{ED} = \frac{AC}{EC} = \frac{BC}{DC}$$

Scale factor?

$$\frac{6}{4} = \frac{7.5}{5} = \frac{9}{6}$$

$$1.5 = 1.5 = 1.5$$

Bill is 1.5 m tall. His shadow is 2.3 m long. He is standing beside a tree that has a shadow that is 8 m long. How tall is the tree? Sketch a diagram

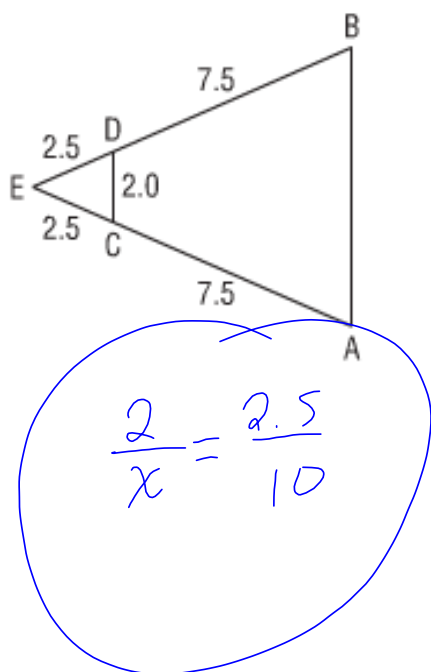


$$\frac{\text{Height tree}}{\text{Height Bill}} = \frac{\text{shadow tree}}{\text{shadow Bill}}$$

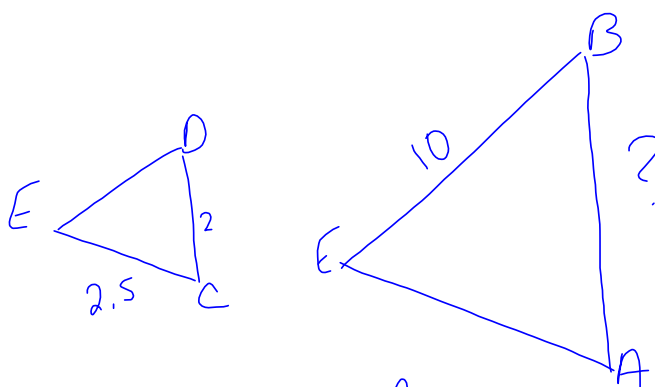
$$\frac{x}{1.5} = \frac{8}{2.3}$$

$$x = 5.2 \text{ m}$$

Solve for BA



$$\frac{2}{x} = \frac{2.5}{10}$$

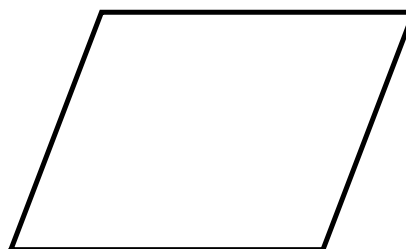
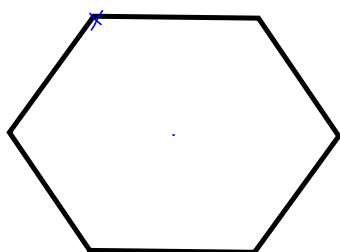


$$\frac{BA}{DC} = \frac{EA}{EC}$$

$$\frac{x}{2} = \frac{10}{2.5}$$

$$k = 8$$

Lines of Symmetry

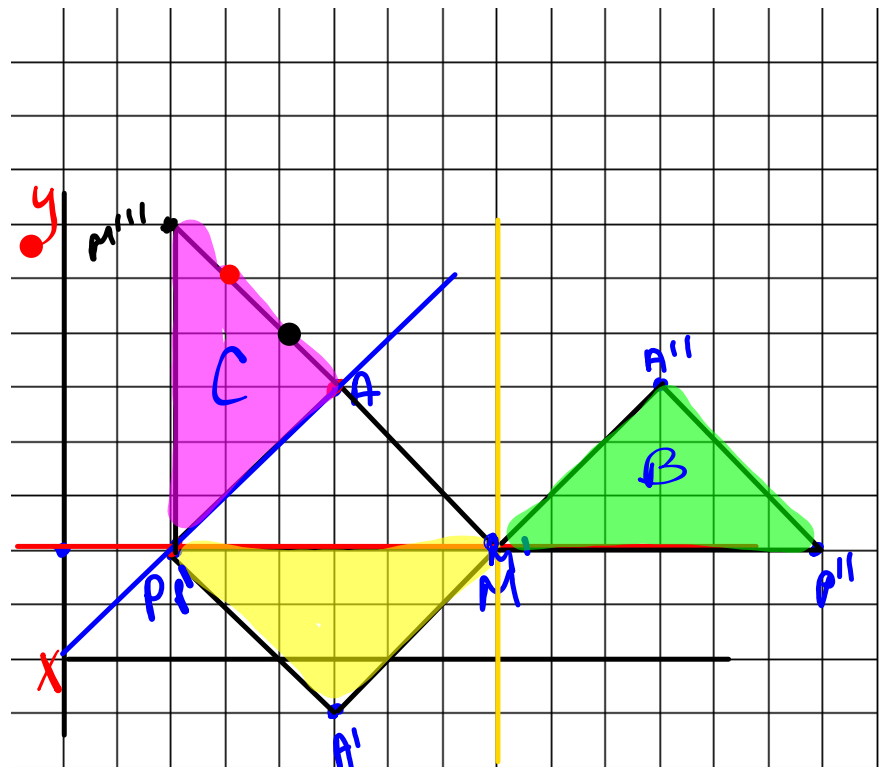


Plot the points:

P (2, 2)

A (5, 5)

M (8, 2)

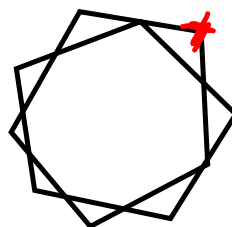
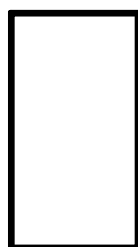
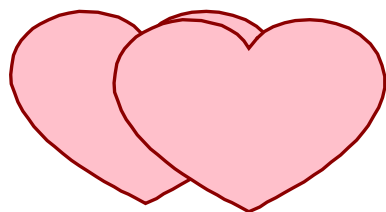


- a) Reflect $\triangle PAM$ in the horizontal line passing through 2 on the y-axis.
- b) Reflect $\triangle PAM$ in the vertical line passing through 8 on the x-axis.
- c) Reflect $\triangle PAM$ in the oblique line passing through the points (2, 2) and (5, 5).

Rotational Symmetry

- The number of times a shape coincides with itself, during rotation of 360, **ORDER OF ROTATION!**

- **ANGLE OF ROTATION**-- $\frac{360}{\text{order of rotation}}$



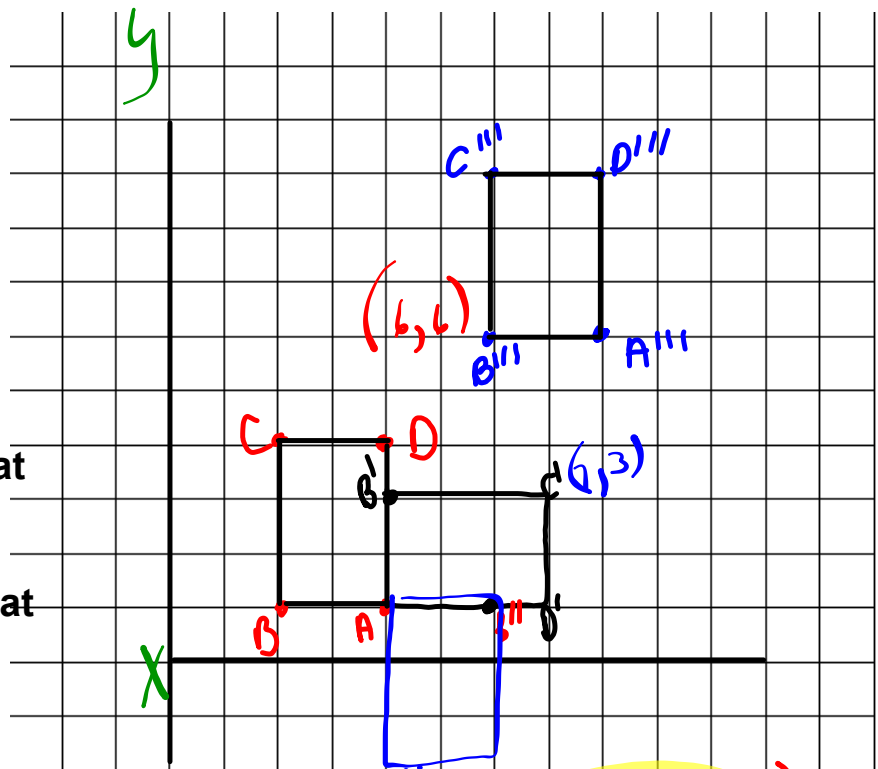
Plot

- A. [4, 1]
- B [2, 1]
- C [2, 4]
- D [4,4]

A. Rotate 90 degrees at point A

B. rotate 180 degrees at point A

C. Translation R4, U5



$(4, -2)$
 $D'' (4, -2)$
 $C'' (7, 3)$
 $B'' (6, 6)$

