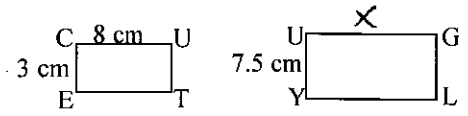
SIMILARITY OF TRIANGLES

Dilations as Proportions Notes

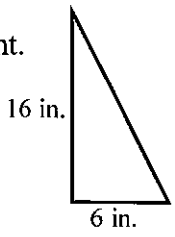
Ex) Rectangle CUTE was dilated to create rectangle UGLY. Find the length of LY.



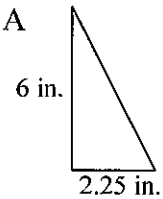
$\frac{8}{3} = \frac{X}{7.5}$

$X = 20$

Ex) Determine which of the following figures could be a dilation of the triangle to the right. (There could be more than one answer)

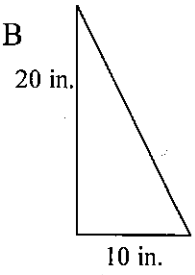


A



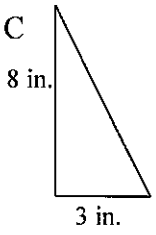
Yes

B



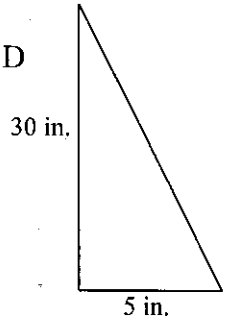
No

C



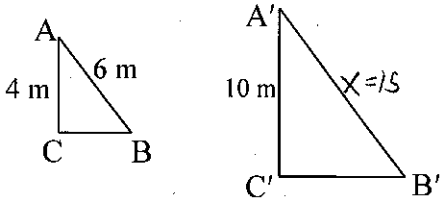
Yes

D



No

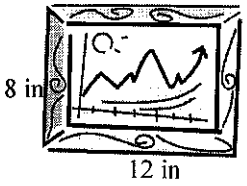
1. Find the length of $\overline{A'B'}$ after the dilation.



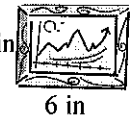
$\frac{6}{4} = \frac{x}{10}$

$x = 15$

2. Which of the following could **NOT** be an enlargement or reduction (dilation) of the original painting shown at right?

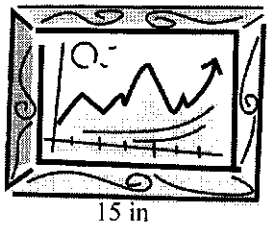


A



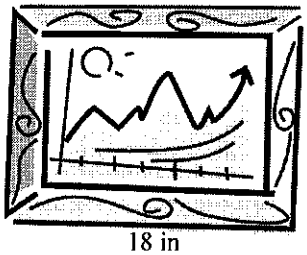
Yes

B



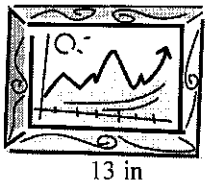
Yes

C



Yes

D



No

Word Problems:
Write the equation for each and solve. Show all work.

1. Two rectangles are similar. The first is 4 in. wide and 15 in. long. The second is 9 in. wide.

   a) Find the length of the second rectangle.

   $\frac{4}{15} = \frac{9}{x}$ $x = 33.75$

   b) How do the perimeters of the two rectangles compare? How does this compare to the scale factor?

   $2(4)+2(15) = 38$ in. $2(9)+2(33.75) = 85.5$ in

   2.25 x bigger

   c) How do the areas of the two rectangles compare? How does this compare to the scale factor?

   $4(15) = 60$ in^2 $9(33.75) = 303.75$ in^2

   5.0625 times bigger

   $(2.25)^2$

2. Two triangles are similar. The first has a base of 12 in. and a height of 8 in. The second has a base of 30 inches.

   a) Find the height of the triangle. $\frac{8}{12} = \frac{x}{30}$

   $x = 20$ in

   b) ~~How do the perimeters of the two triangles compare? How does this compare to the scale factor?~~

   c) How do the areas of the two triangles compare? How does this compare to the scale factor?

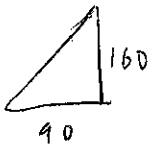
   $\frac{1}{2}(8)(12) = 48$ in.^{2}

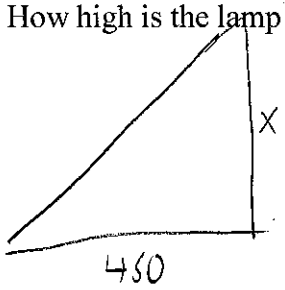
   $\frac{1}{2}(20)(30) = 300$ in^2

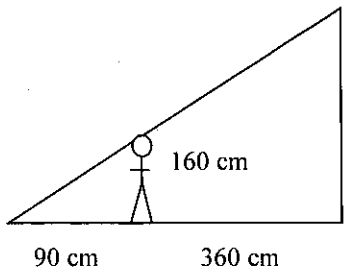
   x 6.25 versus 2.5

   $(2.5)^2$

3) A girl 160 cm tall, stands 360 cm from a lamp post at night. Her shadow from the light is 90 cm long. How high is the lamp post?







$\frac{160}{90} = \frac{x}{450}$ $x = 800$ cm.