Station 1 –Dilation (scale Factor and center (0,0))

1. State whether a dilation using the scale factor *k* results in a reduction or an enlargement of the original.

a. k=3 Enlargement

b. k=1/3 Reduction

c. k=5/4 Enlargement

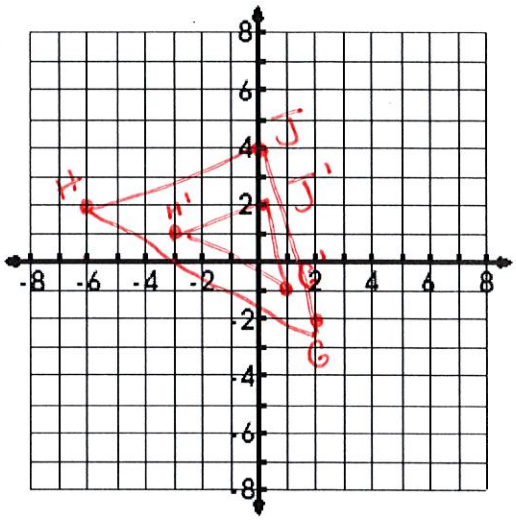
d. k=101% Enlargement

e. k=25% Reduction

f. k=3/8 Reduction

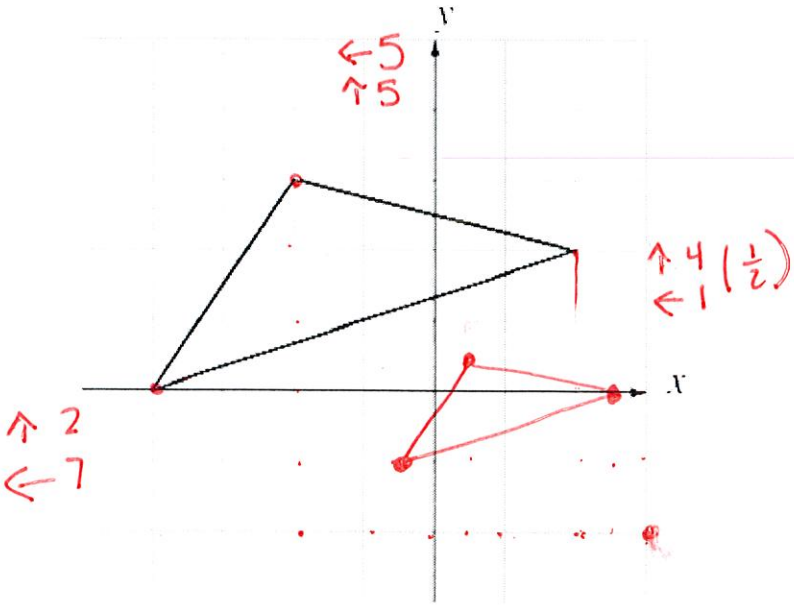
2. A triangle has vertices G(2, -2), H(-6, 2), and J(0, 4). If the triangle is dilated by a scale factor of 0.5 through the center (0,0), what are the image vertices? Draw the pre-image and image on the coordinate plane.

G' (1, -1)
H' (-3, 1)
J (0, 2)



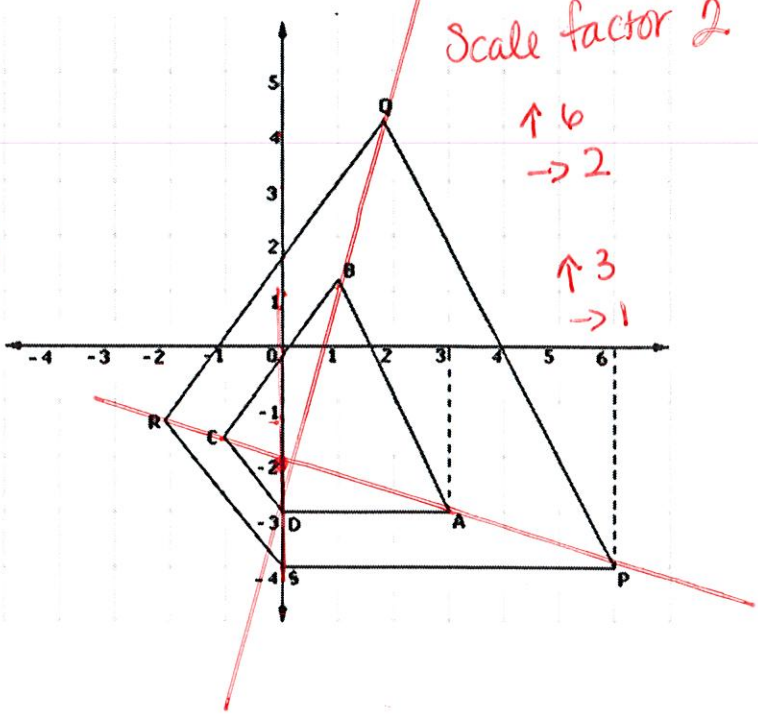
Station 2- Dilation at (h,k)

1. Dilate by $\frac{1}{2}$ using center (3, -2).



2. Find the center of dilation and scale factor from ABCD to PQRS.

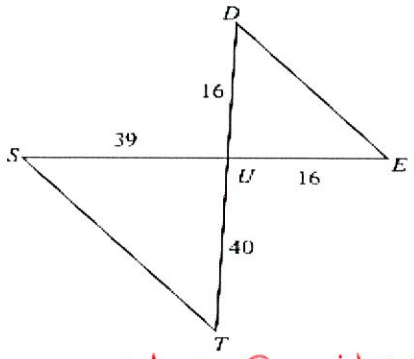
Center (0, -2)
Scale factor 2



Station 3- Similarity

State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

1)

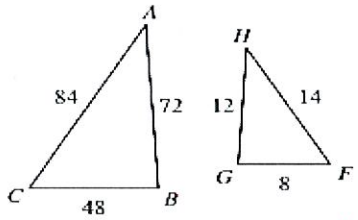


$\Delta UTS \sim$ Not Similar

$\frac{16}{39} = .41$

$\frac{16}{40} = .40$

2)



$\Delta CBA \sim$ ΔFGH by SSS

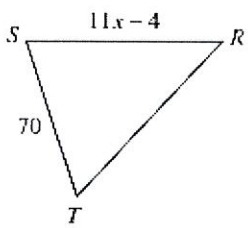
$\frac{8}{48} = .17$

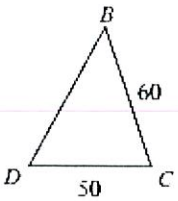
$\frac{12}{72} = .17$

$\frac{14}{84} = .17$

Station 4 – Using Similarity

1. $\Delta TSR \sim \Delta DCB$. Solve for x.





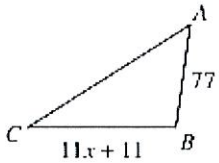
$\frac{70}{50} = \frac{11x-4}{60}$

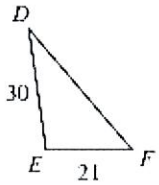
$4200 = 550x - 200$

$4400 = 550x$

$\boxed{8 = x}$

2. $\Delta ABC \sim \Delta FED$. Solve for x.





$\frac{77}{21} = \frac{11x+11}{30}$

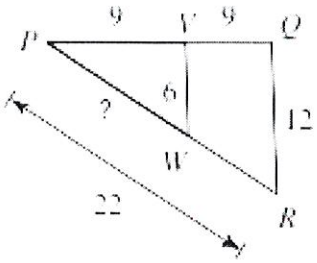
$2310 = 231x + 231$

$2079 = 231x$

$\boxed{x = 9}$

Station 5 – Using Proportions

1. Solve for the ?.

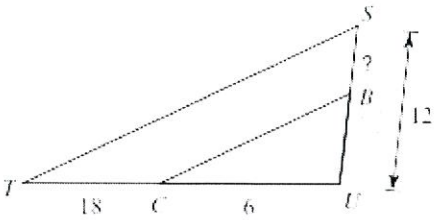


$\frac{x}{22} = \frac{9}{18}$

$18x = 198$

$\boxed{x = 11}$

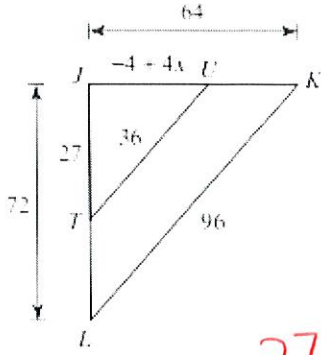
2. Solve for the ?



$\frac{x}{12} = \frac{18}{24}$

$\boxed{x = 9}$

3. Solve the value of x.



$\frac{-4+4x}{64} = \frac{27}{72}$

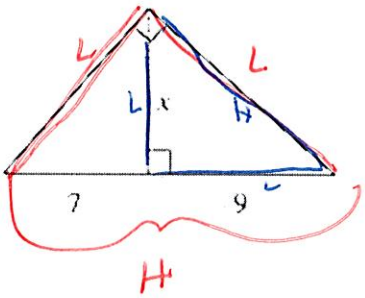
$1728 = -288 + 288x$

$2016 = 288x$

$\boxed{7 = x}$

Station 6 – Using Proportions with right triangles

1. Solve for x.

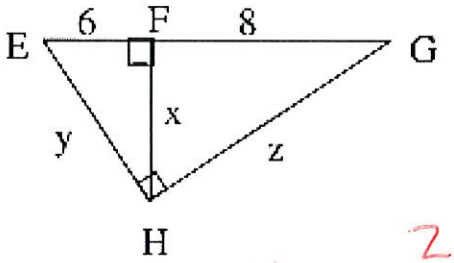


$\frac{x}{7} = \frac{9}{x}$

$x^2 = 63$

$\boxed{x = 7.94}$

2. Solve for x, y, and z.



$\frac{x}{6} = \frac{8}{x}$

$x^2 = 48$

$x = 6.93$

$\frac{y}{6} = \frac{14}{4}$

$y^2 = 84$

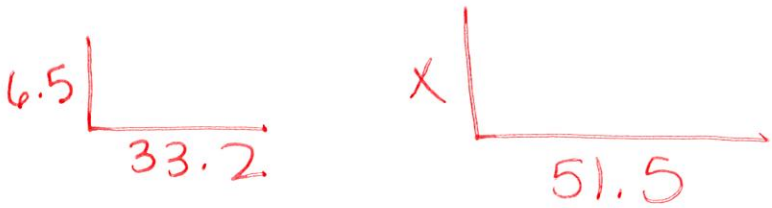
$y = 9.17$

$\frac{z}{8} = \frac{14}{z}$

$z^2 = 112$

$z = 10.58$

3. A 6.5 ft. tall car standing next to an adult elephant casts a 33.2 ft. shadow. If the adult elephant casts a shadow that is 51.5 ft. long, then how tall is it?



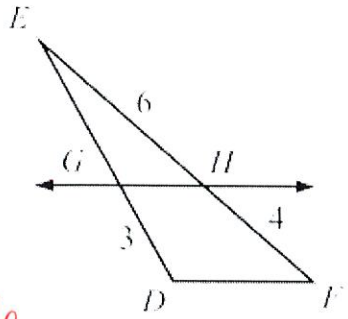
$\frac{6.5}{33.2} = \frac{x}{51.5}$

$x = 10.08\text{ ft.}$

Station 7 – Solving

1. Find the length of EG.

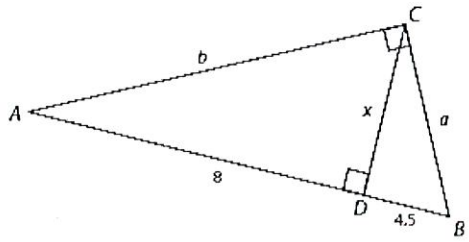
$\overline{GH} \parallel \overline{DF}$.



$\frac{EG}{3} = \frac{6}{4}$

$\boxed{EG = 4.5}$

2. Solve for x, a, and b



$\frac{x}{4.5} = \frac{8}{x}$

$x^2 = 36$

$x = 6$

$\frac{b}{8} = \frac{12.5}{b}$

$b^2 = 100$

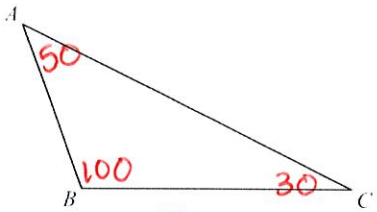
$\boxed{b = 10}$

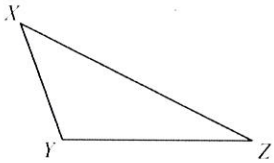
$\frac{a}{4.5} = \frac{12.5}{a}$

$a^2 = 56.25$

$\boxed{a = 7.5}$

3. . Given that $m\angle A = 50°$ and $m\angle B = 100°$, what is $m\angle Z$?



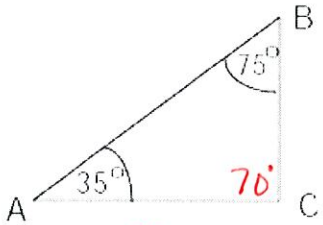


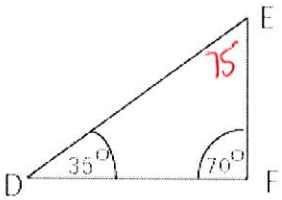
$180 - 150 = 30$

$m\angle Z = 30°$

Station 8 – Stating similarity

1. State whether or not the following triangles are similar and support your answer.

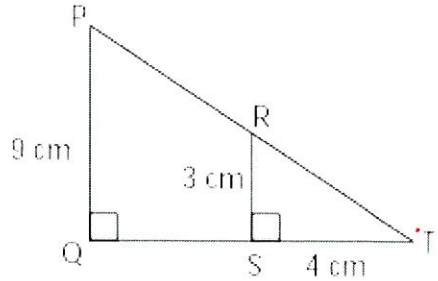




Yes $\triangle ABC \sim \triangle DEF$ by AA

$180 - 110 = 70$

2. Looking at the triangles in the figure on the right:
   a) Are the two triangles similar?
   b) What is the length of *QT*?
   c) If *PT* is 15 cm, what is the length of *RT*?



a) yes, by AA $\angle Q \cong \angle S$ $\angle T \cong \angle T$

b) $\frac{9}{3} = \frac{QT}{4}$ $36 = 3QT$ $\boxed{QT = 12}$

c) $\frac{9}{3} = \frac{15}{RT}$ $9RT = 45$ $\boxed{RT = 5}$