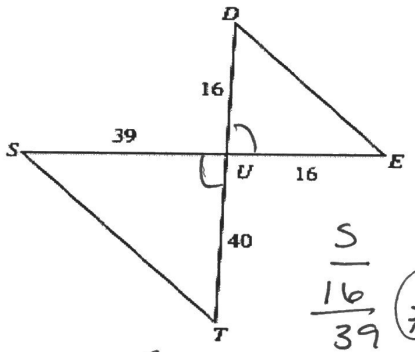
Geometry Unit 3 Similarity and Dilations Review

What are the three different ways to prove that triangles are similar?

AA~, SAS~, SSS~

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

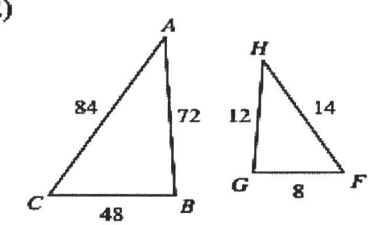
1)



S L
16/39 ≠ 16/40

~~ΔUTS~~ Not similar ∠U ≅ ∠U

2)

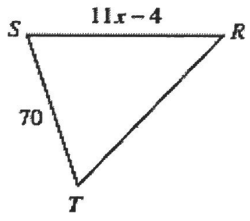


ΔCBA ~ ΔFGH

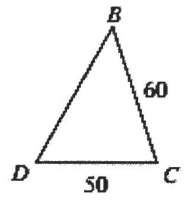
S	m	L
48	72	84
8	12	14
6	= 6	= 6

SSS~

3. ΔTSR~ΔDCB. Solve for x.



70/50 = (11x − 4)/60

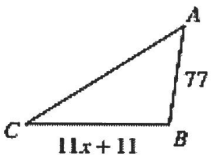


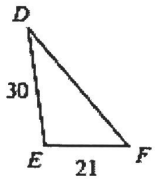
4200 = 550x − 2000

2200 = 550x

x = 4

4. ΔABC~ΔFED. Solve for x.





77/21 = (11x + 11)/30

2310 = 231x + 231

2079 = 231x

9 = x

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

a. k=3 Enlarge

b. k=1/3 Reduce

c. k=5/4 1.25 Enlarge

d. k=101% 100% = 1 Enlarge

e. k=25% .25 Reduce

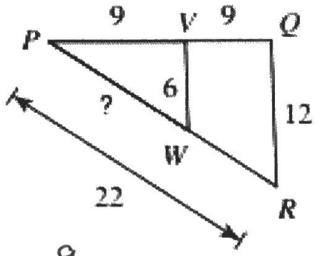
f. k=3/8 .375 Reduce

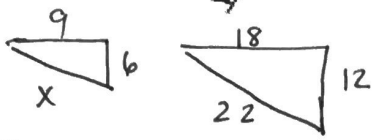
K > 1 Enlarge

0 < K < 1 Reduce

K = 1 Congruent

6. Solve for the ?.



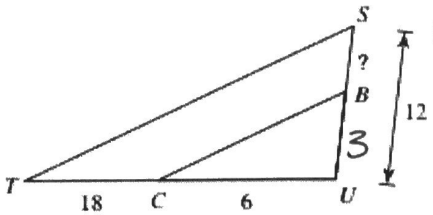


$\frac{9}{18} = \frac{x}{22}$

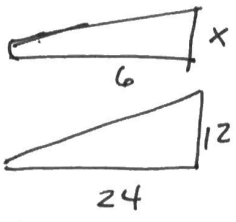
$198 = 18x$

$x = 11$

7. Solve for the ?



12 − 3 = 9

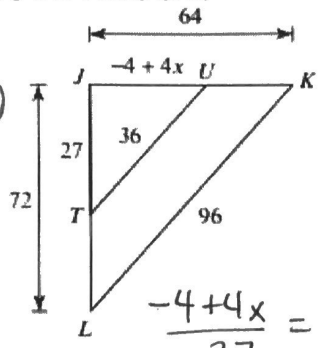


$\frac{x}{12} = \frac{6}{24}$

$24x = 72$

$x = 3$

8. Solve the value of x.



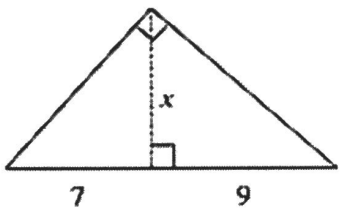
$\frac{-4+4x}{27} = \frac{64}{72}$

$1728 = -288 + 288x$

$2016 = 288x$

$x = 7$

9. Solve for x.

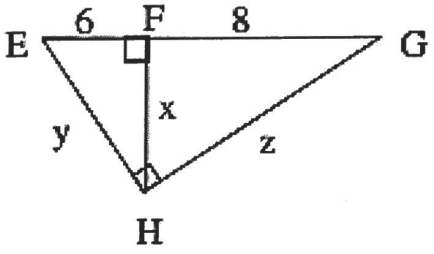


$\frac{x}{7} = \frac{9}{x}$

$x^2 = 63$

$x = \sqrt{63} \approx 7.84$

10. Solve for x, y, and z.



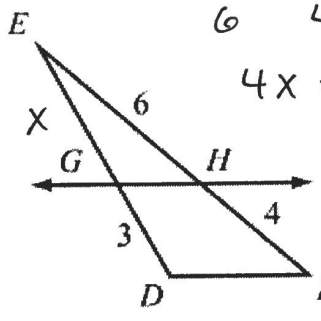
$\frac{x}{6} = \frac{8}{x}$ $\frac{y}{6} = \frac{14}{y}$ $\frac{z}{8} = \frac{14}{z}$

$x^2 = 48$ $y^2 = 9.11$ $z^2 = 112$

$x \approx 6.9$ $y \approx 9.1$ $z \approx 10.6$

11. Find the length of EG.

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

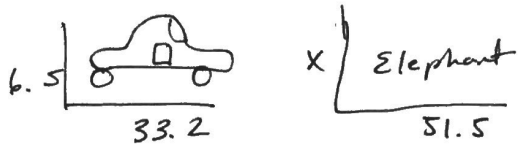


$\frac{x}{6} = \frac{3}{4}$

$4x = 18$

$x = 4.5$

12. 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?

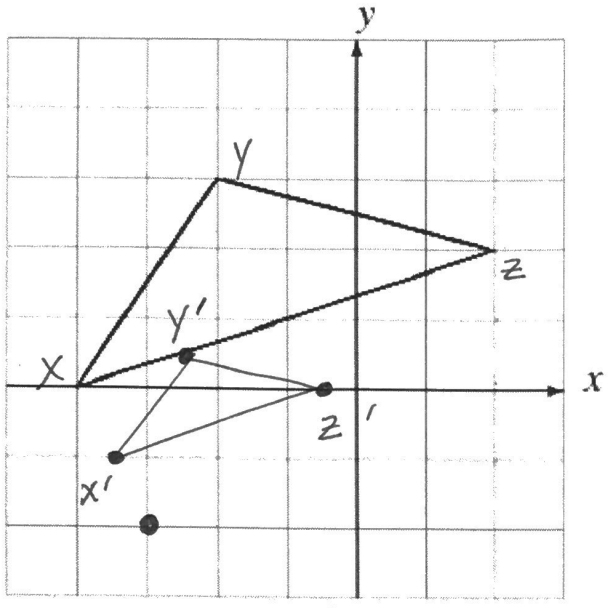


$\frac{6.5}{x} = \frac{33.2}{51.5}$

$x = 10.08$ ft or 10.1 ft.

Key Typo

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



X ↑2 ←1 ↑1 ←.5

Y →1 ↑5 →.5 ↑2.5

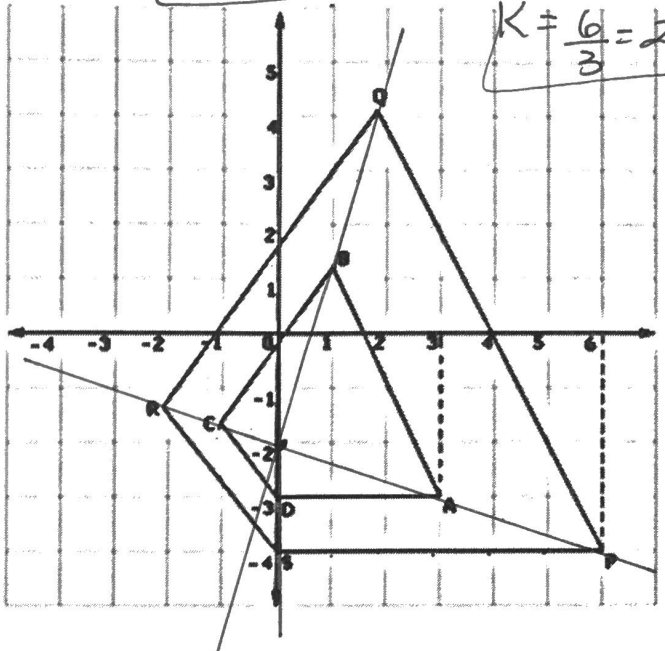
Z 5→, ↑4 →2.5 ↑2

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

(0, -2)

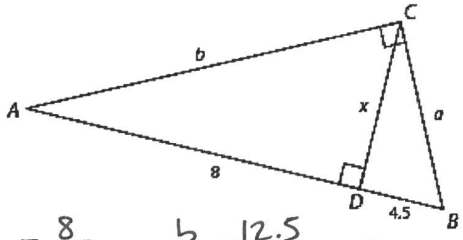
Scale Factor:

$K = \frac{6}{3} = 2$



→ △ABC ~ △XYZ

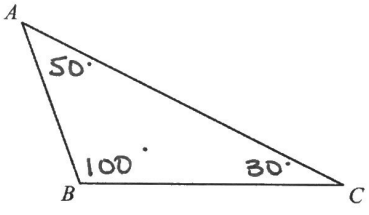
15. Solve for x, a, and b

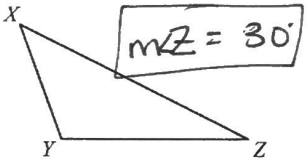


$\frac{X}{4.5} = \frac{8}{X}$ $\frac{b}{8} = \frac{12.5}{b}$ $\frac{a}{4.5} = \frac{12.5}{a}$

X = 6 b = 10 a = 7.5

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





$m\angle Z = 30°$

16. 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.

K = ½

G'(1, -1)

J'(0, 2)

H'(-3, 1)