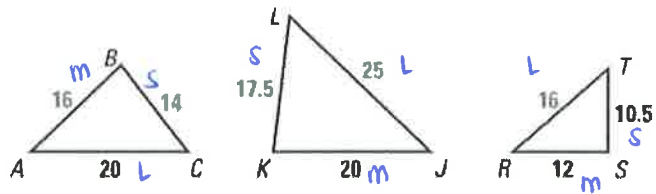


1. Please determine if any pairs of triangles are similar. If so, write a similarity statement. Show all work.

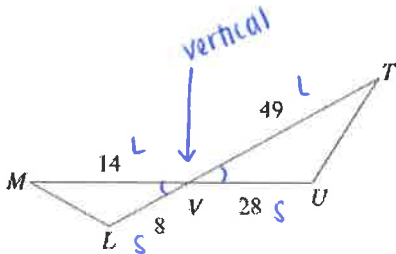
$$\frac{\Delta ABC}{\Delta JKL} : \frac{14}{17.5}, \frac{16}{20}, \frac{20}{25} \Rightarrow \frac{4}{5}, \frac{4}{5}, \frac{4}{5}$$

$\Delta ABC \sim \Delta JKL$  by SSS



For exercises #2 – 5, determine whether the two triangles are similar. If they are similar, write a similarity statement and state the reason why.

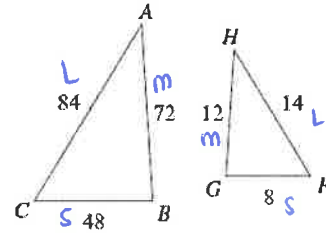
2.



$$\frac{\Delta MVL}{\Delta TVU} : \frac{8}{28}, \frac{14}{49} \Rightarrow \frac{2}{7}, \frac{2}{7}$$

$\Delta MVL \sim \Delta TVU$  by SAS

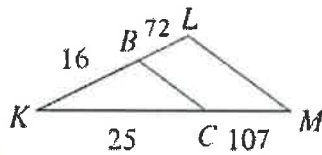
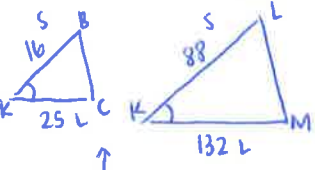
3.



$$\frac{\Delta ABC}{\Delta HGF} : \frac{48}{8}, \frac{72}{12}, \frac{84}{14} \Rightarrow \frac{6}{1}, \frac{6}{1}, \frac{6}{1}$$

$\Delta ABC \sim \Delta HGF$  by SSS

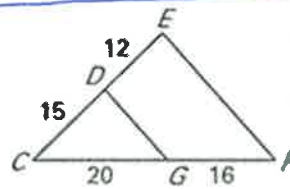
4.



$$\frac{\Delta KBC}{\Delta KLM} : \frac{16}{88}, \frac{25}{132} \Rightarrow \frac{2}{11}, \frac{25}{132}$$

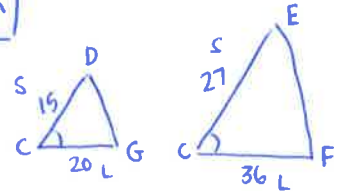
not the same scale factor, not similar

5.



$$\frac{\Delta CDG}{\Delta CEF} : \frac{15}{27}, \frac{20}{36} \Rightarrow \frac{5}{9}, \frac{5}{9}$$

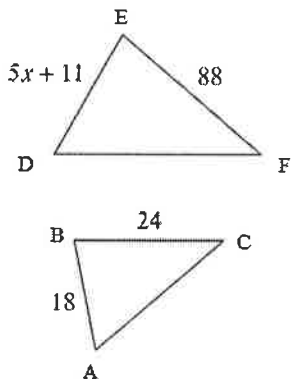
$\Delta CDG \sim \Delta CEF$  by SAS



both  $\Delta$ 's share  $\angle C$

6. Find the value of the variables that make  $\Delta ABC \sim \Delta DEF$ .

a.



Look at the order of the letters to match up corresponding sides

$$\frac{AB}{DE} = \frac{BC}{EF}$$

$$\frac{18}{5x+11} = \frac{24}{88}$$

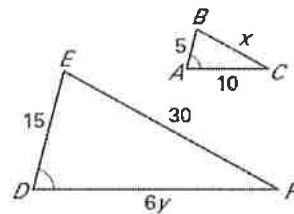
$$1584 = 24(5x+11)$$

$$1584 = 120x + 264$$

$$1320 = 120x$$

$$x = 11$$

b.



$$\frac{AB}{DE} = \frac{BC}{EF}$$

$$\frac{5}{15} = \frac{x}{30}$$

$$15x = 150$$

$$x = 10$$

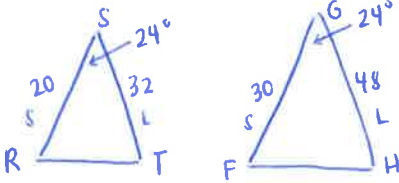
$$\frac{AB}{DE} = \frac{AC}{DF}$$

$$\frac{5}{15} = \frac{10}{6y}$$

$$150 = 30y$$

$$y = 5$$

7. In  $\triangle RST$ ,  $RS = 20$ ,  $ST = 32$ , and  $m\angle S = 24^\circ$ . In  $\triangle FGH$ ,  $FG = 30$ ,  $GH = 48$ , and  $m\angle G = 24^\circ$ . Explain whether the two triangles can be similar. If so, write a similarity statement and state the reason why.



$$\frac{\triangle RST}{\triangle FGH} : \frac{20}{30}, \frac{32}{48} \Rightarrow \frac{2}{3}, \frac{2}{3}$$

$\triangle RST \sim \triangle FGH$  by SAS  $\checkmark$

8.  $\triangle GHI$  has vertices  $G(0,5)$ ,  $H(4,2)$ , and  $I(3,3)$ . What are the vertices after the dilation with a scale factor of 9 using the origin as the center of dilation?

$$k=9$$

$$G(0,5) \times 9$$

$$H(4,2) \times 9 \Rightarrow$$

$$I(3,3) \times 9$$

$$G'(0,45)$$

$$H'(36,18)$$

$$I'(27,27)$$

9.  $\triangle ABC$  has vertices  $A(0,20)$ ,  $B(16,24)$ , and  $C(12,12)$ . What are the vertices after the dilation with a scale factor of  $\frac{3}{4}$  using the origin as the center of dilation?

$$k=3/4$$

$$A(0,20) \times 3/4$$

$$B(16,24) \times 3/4 \Rightarrow$$

$$C(12,12) \times 3/4$$

$$A'(0,15)$$

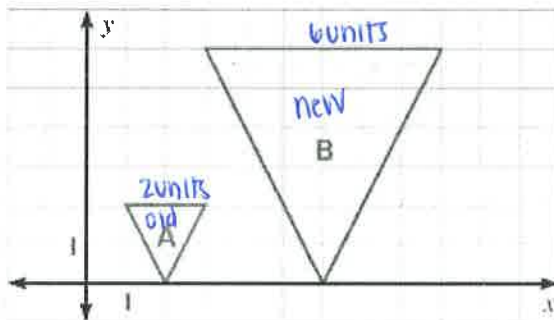
$$B'(12,18)$$

$$C'(9,9)$$

Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. State the scale factor.

old new

10.

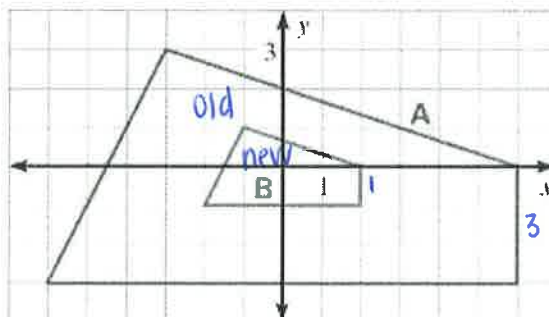


Enlargement

$$\frac{\text{new}}{\text{old}} : \frac{6}{2} = \frac{3}{1}$$

$$k=3$$

11.



Reduction

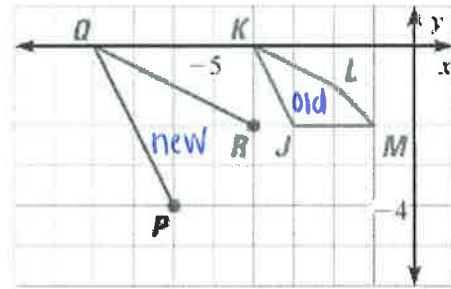
$$\frac{\text{new}}{\text{old}} = \frac{1}{3}$$

$$k=1/3$$

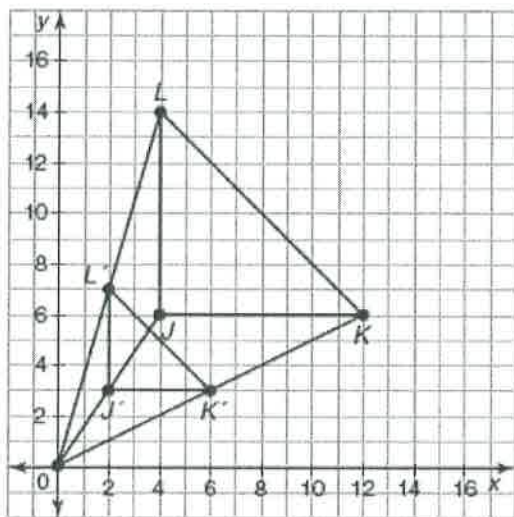
12. You want to create a quadrilateral PQRS that is similar to quadrilateral JKLM. What are the coordinates of S?

$$\frac{\text{new}}{\text{old}} : \frac{Q(-8,0)}{K(-4,0)} = \frac{-8}{-4} = \frac{a}{1} \Rightarrow \boxed{K=a}$$

$$M(-1,-2) \times a \Rightarrow \boxed{S(-a,-4)}$$



13. Given the image and the pre-image, determine the scale factor.



$$\frac{\text{new}}{\text{old}} : \frac{K'(6,3)}{K(12,6)} \Rightarrow \frac{6}{12} = \boxed{\frac{1}{2}}$$

**Answer Key :**

1.  $\triangle ABC \sim \triangle JKL$  by SSS Similarity
2.  $\triangle MLV \sim \triangle TUV$  by SAS Similarity
3.  $\triangle FGH \sim \triangle CBA$  by SSS Similarity
4. Not Similar
5.  $\triangle GCD \sim \triangle FCE$  by SAS Similarity
6. a.  $x = 11$       b.  $x = 10, y = 5$
7.  $\triangle RST \sim \triangle FGH$  by SAS Similarity
8.  $G'(0, 45), H'(36, 18), I'(27, 27)$
9.  $A'(0, 15), B'(12, 18), C'(9, 9)$
10. Enlargement, Scale factor : 3
11. Reduction, Scale factor :  $\frac{1}{3}$
12.  $S(-2, -4)$
13.  $k = \frac{1}{2}$