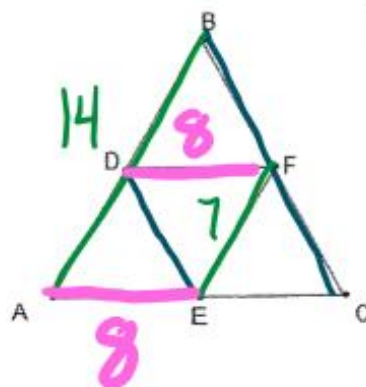


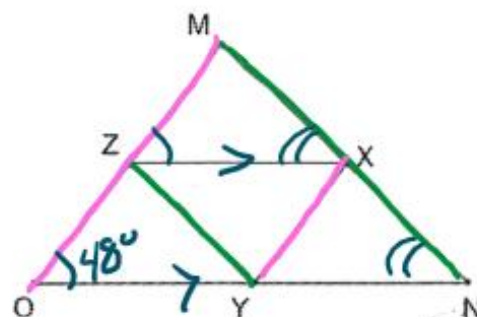
Use the diagram of $\triangle ABC$ where D, E, and F are the midpoints of the sides.

- $\overline{DE} \parallel \overline{BC}$
- $\overline{FE} \parallel \overline{BA}$
- If $AB = 14$, then $EF = 7$
- If $AE = 8$, then $DF = 8$
- If $DE = 4x+5$ $BC = 12x-2$, find $x = 3$, $BC = 34$
 $2(4x+5) = 12x-2$



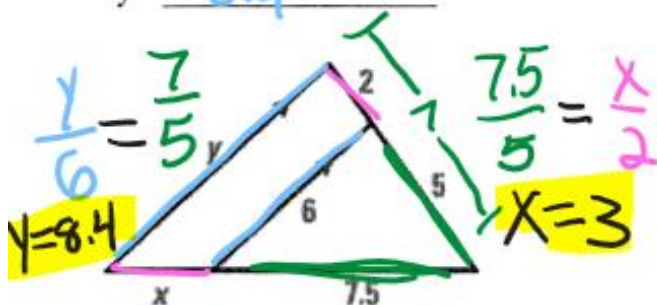
Use the diagram of $\triangle MNO$ where X, Y, and Z are midpoints of the sides.

- If $YZ = 3x + 1$, and $MN = 10x - 6$ then $YZ = 25$
 $2(3x+1) = 10x-6$
 $x = 8$
- If $YX = x - 1$, and $MO = 3x - 7$, then $MO = 8$
 $2(x-1) = 3x-7$ $x = 5$
- If $m\angle MON = 48^\circ$, then $m\angle MZX = 48^\circ$
- If $m\angle MXZ = 37^\circ$, then $m\angle MNO = 37^\circ$

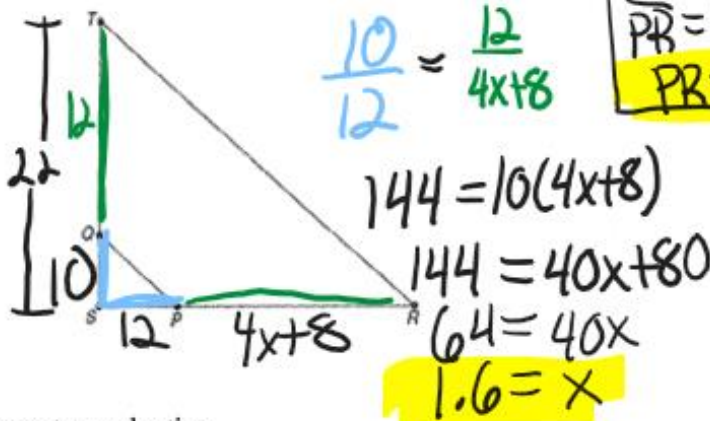


14. Solve for the following.

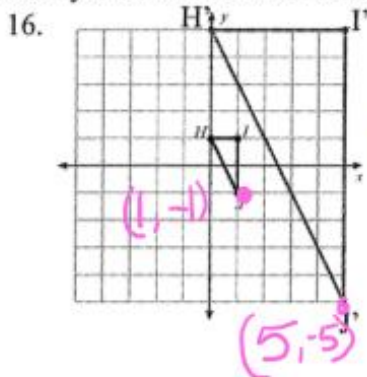
$x = 3$
 $y = 8.4$



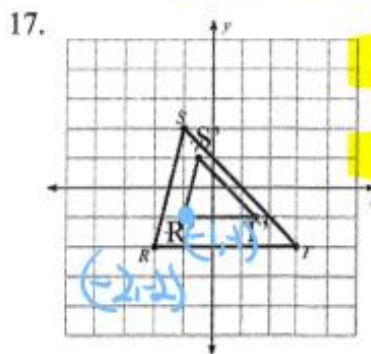
15. $SQ = 10$; $ST = 22$; $SP = 12$; $PR = 4x+8$
 $x = 1.6$, $PR = 14.4$



Identify the scale factor and tell if it is an enlargement or reduction.

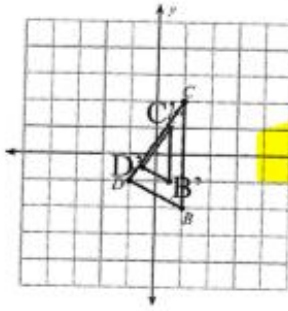


Enlargement
 $k = \frac{5}{1} = 5$



Reduction
 $k = \frac{-1}{-2} = \frac{1}{2}$

18.

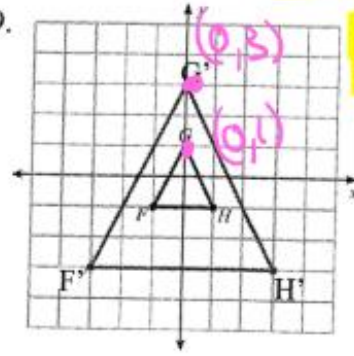


Reduction
 $C(1,2) \rightarrow C'(0.5,1)$

$k = \frac{1}{2}$

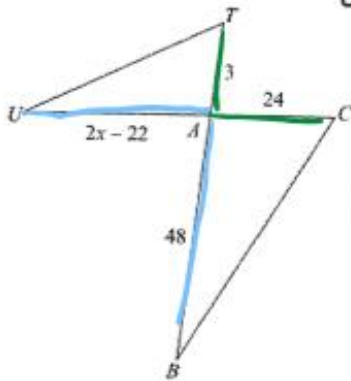
Enlargement

$k = \frac{3}{1}$



20. Identify the scale factor from $\triangle ABC$ to $\triangle AUT$.
 Solve for x.

$\triangle ABC \sim \triangle AUT$



$k = \frac{3}{24} = \frac{1}{8}$

$\frac{2x-22}{48} = \frac{1}{8}$

$8(2x-22) = 48$

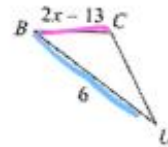
$2x-22 = 6$

$2x = 28$

$x = 14$

21. Identify scale factor $\triangle UVW$ to $\triangle UBC$.
 Solve for x.

$\triangle UVW \sim \triangle UBC$



$\frac{1}{4} = \frac{2x-13}{12}$

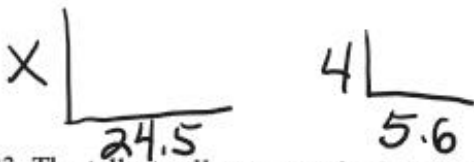
$12 = 4(2x-13)$

$3 = 2x-13$

$16 = 2x$

$8 = x$

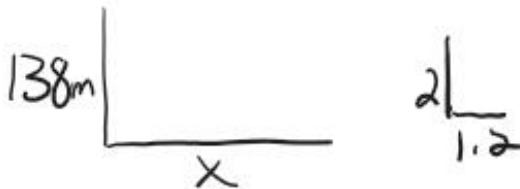
22. At a certain time of day a tree casts a shadow that is 24.5 ft long. At the same time a nearby 4 foot tall bush casts a 5.6 foot shadow. How tall is the tree?



$\frac{x}{4} = \frac{24.5}{5.6}$

$x = 17.5 \text{ ft}$

23. The tallest roller coaster in the world is 138 meters tall. At 1 PM it casts a shadow. At the same time a park attendee waiting in line is 2 meters tall and their shadow is 1.2 meters long. How long is the shadow of the roller coaster?



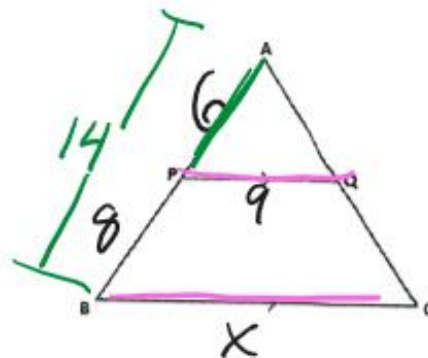
$\frac{138}{2} = \frac{x}{1.2}$

$x = 82.8 \text{ m}$

24. $AP = 6$, $PB = 8$, $PQ = 9$, $BC = x$. What is the value of x?

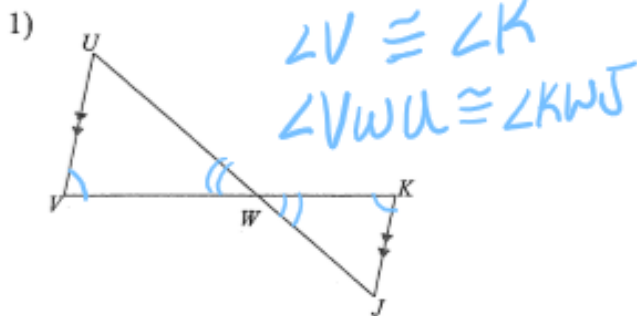
$\frac{x}{9} = \frac{14}{6}$

$x = 21$

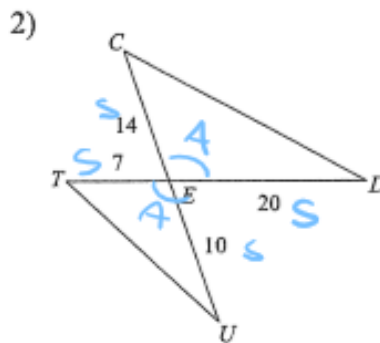


Proving Triangles Similar

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

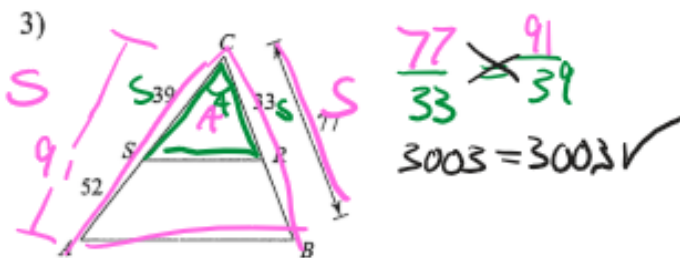


$\Delta WVU \sim \Delta WKJ$ by AA



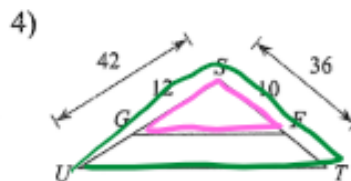
$\frac{14}{7} = \frac{20}{10}$
 $2 = 2$

$\Delta EDC \sim \Delta EUT$



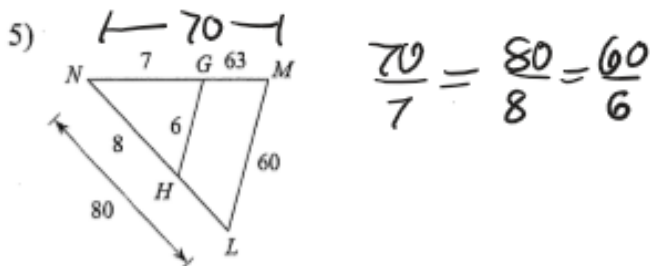
$\frac{77}{33} \neq \frac{91}{39}$
 $3003 = 3003 \checkmark$

$\Delta CBA \sim \Delta CRS$ by SAS



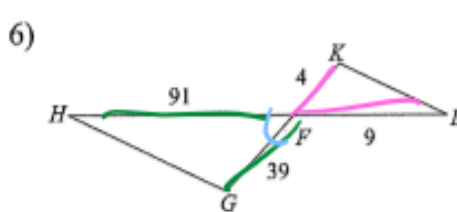
$\frac{42}{12} \neq \frac{36}{10}$

$\Delta STU \sim$ Not similar $420 \neq 432$



$\frac{70}{7} = \frac{80}{8} = \frac{60}{6}$

$\Delta NML \sim \Delta NGH$ by SSS or SAS



$\frac{34}{4} \neq \frac{91}{9}$

$\Delta FGH \sim$ Not similar $364 \neq 351$