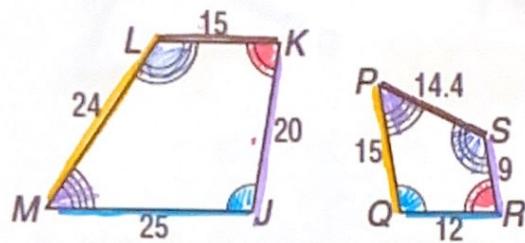


Similarity Review 2020 Remote Learning

key

1. Determine if the figures below are similar. Explain why or why not.



must have \cong corr. \angle s
 $\angle J \cong \angle Q$ $\angle K \cong \angle R$ $\angle L \cong \angle S$ $\angle M \cong \angle P$

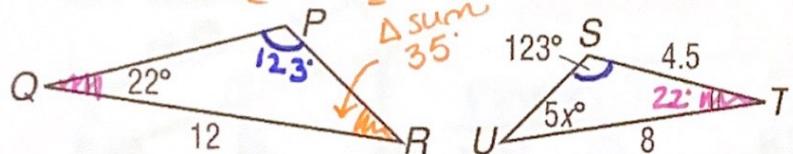
Side length ratios must be equal

$$\frac{25}{12} = 2.08\bar{3} \quad \frac{20}{9} = 2.\bar{2} \quad \frac{15}{14.4} = 1.041\bar{6}$$

$$\frac{24}{15} = 1.6$$

Corresponding angles are \cong but SLR are not equal
So the figures are not similar

2. Given $\triangle STU \sim \triangle PQR$, find x .

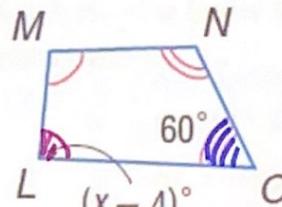
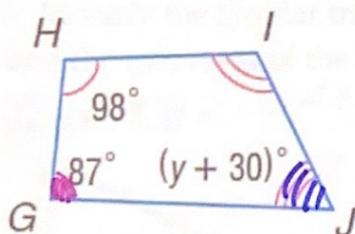


$$\angle R \cong \angle U$$

$$\frac{35}{5} = \frac{5x}{5}$$

$$x = \underline{\hspace{2cm}} 7$$

3. Given Quadrilateral HIGJ \sim Quadrilateral MNOL, find x and y .



$$\angle L \cong \angle G$$

$$x - 4 = 87$$

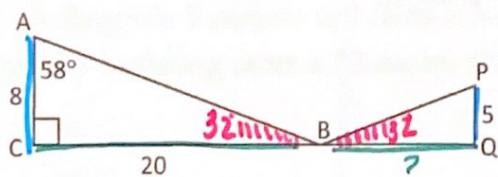
$$x = \underline{\hspace{2cm}} 91$$

$$\angle O \cong \angle J$$

$$60 = y + 30$$

$$30 = y$$

4. $\triangle ABC \sim \triangle PBQ$. Find $\angle PBQ$ and BQ . Round to the nearest tenth.



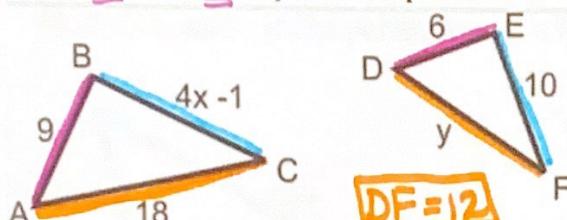
$$\angle PBQ = \underline{\hspace{2cm}} 32^\circ$$

$$\frac{BQ}{20} = \frac{5}{8}$$

$$8(BQ) = 100$$

$$BQ = 12.5$$

5. If $\triangle ABC \sim \triangle DEF$, find the perimeter of $\triangle ABC$. What is the ratio of ABC to DEF?



$$BC = 4(4) - 1$$

$$BC = 15$$

$$\frac{4x-1}{10} = \frac{9}{6}$$

$$6(4x-1) = 90$$

$$24x - 6 = 90$$

$$24x = 96$$

$$x = 4$$

$$9 + 18 + 15 = 42$$

$$\text{Perimeter of } ABC = 42$$

$$\frac{18}{y} = \frac{9}{6}$$

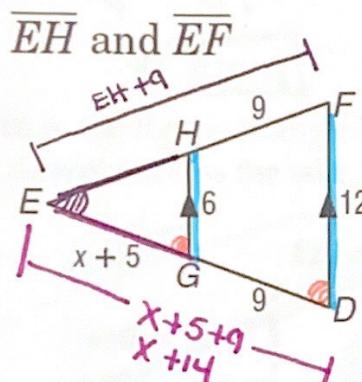
$$108 = 9y$$

$$12 = y$$

$$PR = \frac{42}{28}$$

$$PR = \frac{3}{2}$$

6. Identify the Similar triangles, how you know they are similar, find the variable(s) and the measures of the indicated sides.



$\angle E \cong \angle E$ Reflexive
 $\angle D \cong \angle HGE$ // lines form
 \cong corr. $\angle s$

$\triangle EHG \sim \triangle EFD$
 by AA similarity

$$\text{Find } x.$$

$$\frac{x+14}{x+5} = \frac{12}{6}$$

$$6(x+14) = 12(x+5)$$

$$6x + 84 = 12x + 60$$

$$-6x \quad -6x$$

$$24 = 6x$$

$$4 = x$$

$$\text{Find } EH$$

$$\frac{EH}{EH+9} = \frac{6}{12}$$

$$12EH = 6(EH+9)$$

$$12EH = 6EH + 54$$

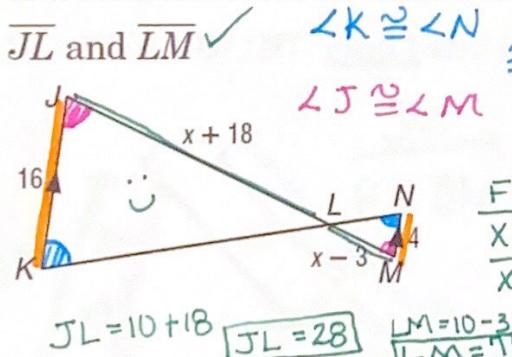
$$6EH = 54$$

$$EH = 9$$

$$EF = 9+9$$

$$EF = 18$$

7. Identify the Similar triangles, how you know they are similar, find the variable(s) and the measures of the indicated sides.



$\angle K \cong \angle N$ // lines form
 \cong alt. int $\angle s$.

$\triangle JKL \sim \triangle MLN$ by
 AA similarity.

$$\text{Find } x$$

$$\frac{x+18}{x-3} = \frac{16}{4}$$

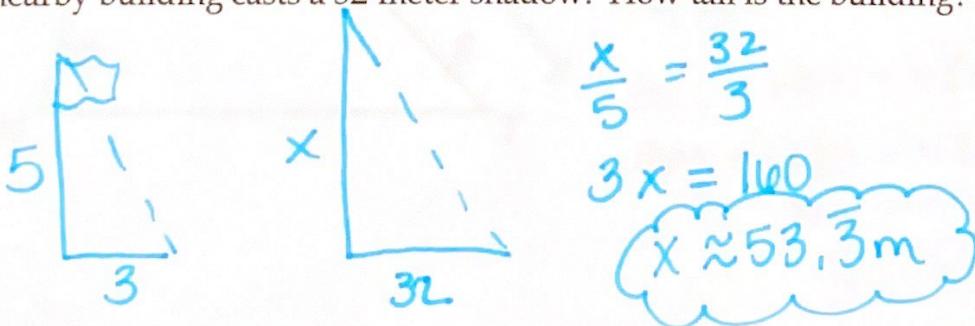
$$4(x+18) = 16(x-3)$$

$$4x + 72 = 16x - 48$$

$$120 = 12x$$

$$10 = x$$

8. A flagpole 5 meters tall casts a 3-meter shadow. At the same time of day, a nearby building casts a 32-meter shadow. How tall is the building?



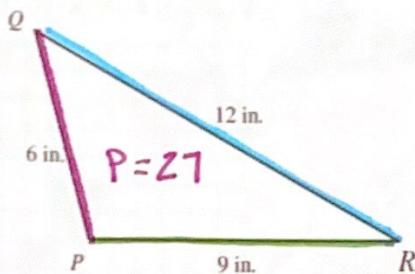
$$\frac{x}{5} = \frac{32}{3}$$

$$3x = 160$$

$x \approx 53.\overline{3} \text{ m}$

9. $\Delta QPR \sim \Delta OMN$

Find a , b , and c if the perimeter of ΔMON is 18 inches. All measurements are in inches.

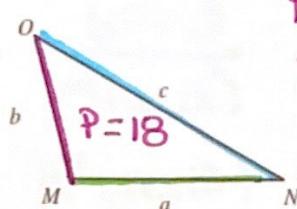


$$\frac{a}{9} = \frac{18}{27}$$

$$a = 6 \text{ in.}$$

$$\frac{b}{6} = \frac{18}{27}$$

$$b = 4 \text{ in.}$$

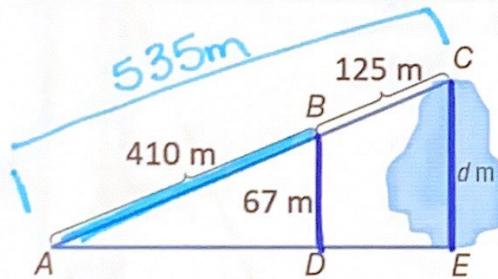


$$\frac{c}{12} = \frac{18}{27}$$

$$\frac{c}{12} = \frac{18}{27}$$

$$c = 8 \text{ in.}$$

10. In the figure, triangle DBA is similar to triangle ECA. Ramon wants to know the distance across the lake. Find d and round to the nearest hundredth if needed.



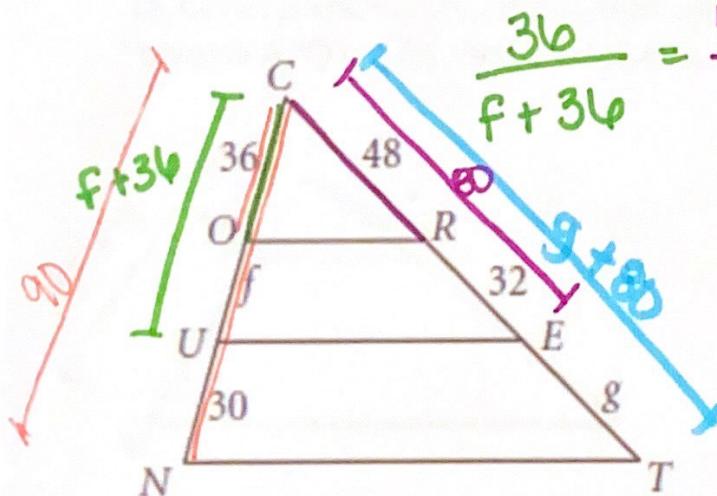
You must use full Δ sides
*125 is not a full Δ side.

$$\frac{d}{67} = \frac{535}{410}$$

$$d \approx 87.42682927$$

$$d \approx 87.43 \text{ m}$$

11. OR // UE // NT. Find f and g .



$$\frac{36}{f+36} = \frac{48}{80}$$

$$2880 = 48(f + 36)$$

$$2880 = 48f + 1728$$

$$1152 = 48f$$

$$24 = f$$

$$\frac{9+80}{48} = \frac{90}{34}$$

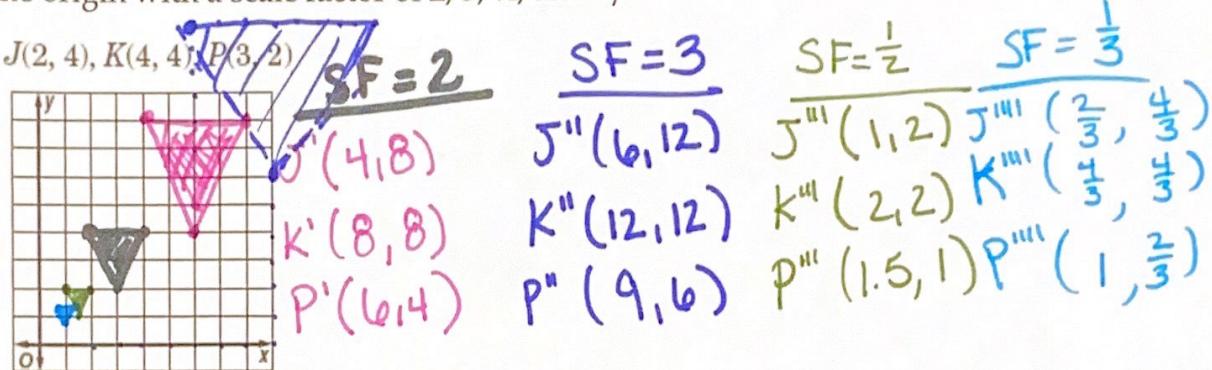
$$36(g+80) = 48 \cdot 90$$

$$36g + 2880 = 4320$$

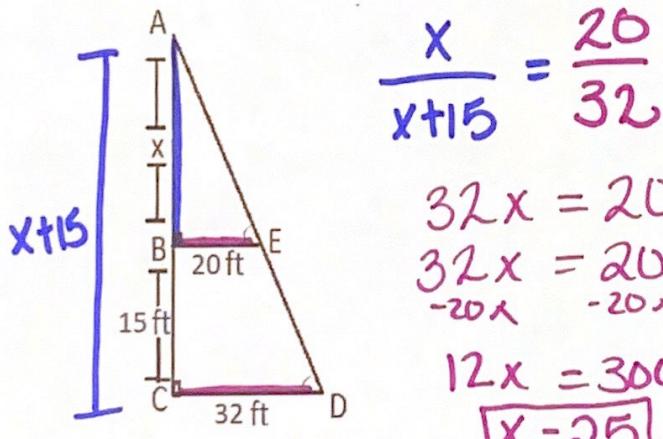
$$36g = 1440$$

$$g = 40$$

12. Find the image of the polygon, given the vertices, after a dilation centered at the origin with a scale factor of 2, 3, $\frac{1}{2}$, and $\frac{1}{3}$.



13. Find x . $\triangle ABE \sim \triangle ACD$ by AA similarity



$$\frac{x}{x+15} = \frac{20}{32}$$

$$32x = 20(x+15)$$

$$32x = 20x + 300$$

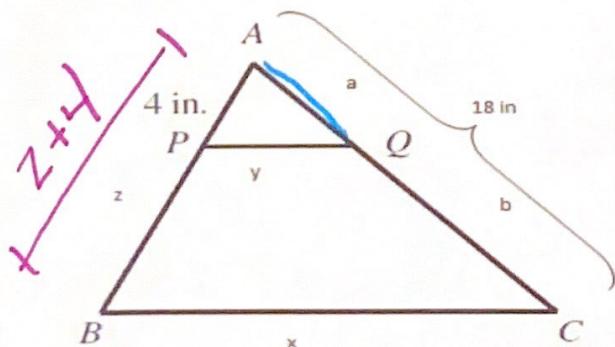
$$-20x \quad -20x$$

$$12x = 300$$

$$\boxed{x = 25}$$

$$\{ 25\text{ft} + x$$

14. Given $\triangle ABC \sim \triangle APQ$. If the perimeter of ABC is 84in and the perimeter of triangle APQ is 34in . Find all variables.



$$PR = \frac{34}{51}$$

$$\frac{a}{18} = \frac{34}{51}$$

$$\boxed{a = 12\text{ in}}$$

$$a + b = 18$$

$$\boxed{b = 6\text{ in}}$$

$$\frac{4}{z+4} = \frac{34}{51}$$

$$204 = 34(z+4)$$

$$204 = 34z + 136$$

$$68 = 34z$$

$$\boxed{2 = z}$$

$$4 + a + y = 34\text{ in}$$

$$4 + 12 + y = 34$$

$$\boxed{y = 18\text{ in}}$$

$$18 + x + 6 = 51$$

$$\boxed{x = 27\text{ in}}$$