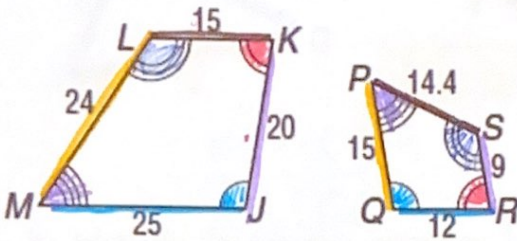


Similarity Review 2020 Remote Learning

Key

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



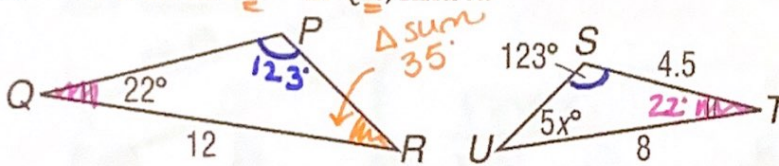
must have \cong corr. \angle s
 $\angle M \cong \angle Q$ $\angle K \cong \angle R$ $\angle L \cong \angle S$ $\angle N \cong \angle P$

Side length ratios must be equal

$\frac{25}{12} = 2.08\bar{3}$ $\frac{20}{9} = 2.\bar{2}$ $\frac{15}{14.4} = 1.041\bar{6}$
 $\frac{24}{15} = 1.6$

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

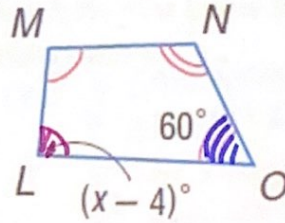
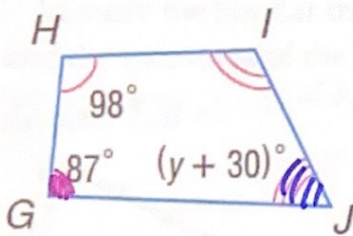
2. Given $\triangle STU \sim \triangle PQR$, find x.



$\angle R \cong \angle U$
 $35 = \frac{5x}{5}$

x = 7

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



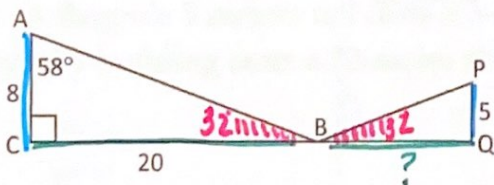
$\angle L \cong \angle G$
 $x - 4 = 87$
 $x = 91$

x = 91

y = 30

$\angle O \cong \angle J$
 $60 = y + 30$
 $30 = y$

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



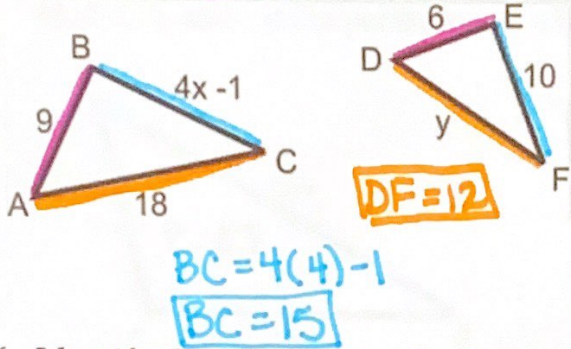
$\angle PBQ = \underline{32^\circ}$

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

BQ = 12.5

$8(BQ) = 100$
 $BQ = 12.5$

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



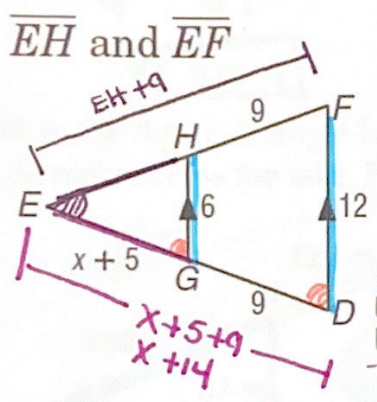
$9 + 18 + 15 = 42$
Perimeter of ABC = 42

$\frac{4x-1}{10} = \frac{9}{6}$
 $6(4x-1) = 90$
 $24x - 6 = 90$
 $24x = 96$
 $x = 4$

$\frac{18}{y} = \frac{9}{6}$
 $108 = 9y$
 $12 = y$
PR = $\frac{42}{28}$
PR = $\frac{3}{2}$

$BC = 4(4) - 1$
 $BC = 15$

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

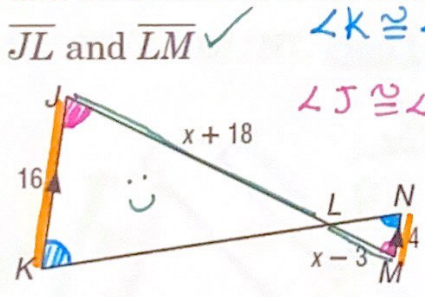
Find x.
 $\frac{x+14}{x+5} = \frac{12}{6}$

$6(x+14) = 12(x+5)$
 $6x + 84 = 12x + 60$
 $-6x \quad -60 \quad -6x \quad -60$
 $24 = 6x$
 $4 = x$

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.
 $\angle J \cong \angle M$ // lines form \cong alt. int. \angle s.

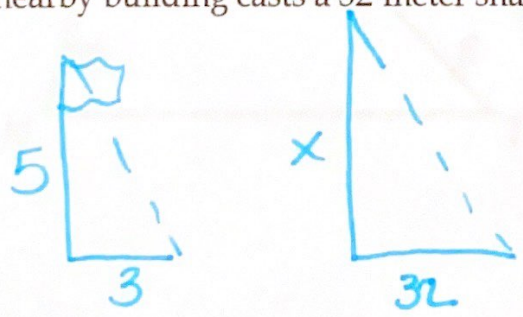
$\triangle JLK \sim \triangle MLN$ by AA similarity.

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

$4(x+18) = 16(x-3)$
 $4x + 72 = 16x - 48$
 $120 = 12x$
 $10 = x$

$JL = 10 + 18$
 $JL = 28$
 $LM = 10 - 3$
 $LM = 7$

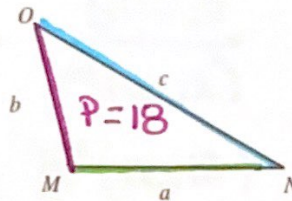
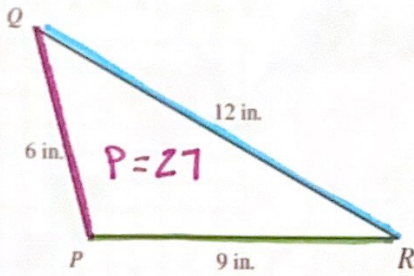
8. A flagpole 5 meters tall casts a 3-meter shadow. At the same time of day, a nearby building casts a 32-meter shadow. How tall is the building?



$\frac{x}{5} = \frac{32}{3}$
 $3x = 160$
 $x \approx 53.3m$

9. $\triangle QPR \sim \triangle OMN$

Find a , b , and c if the perimeter of $\triangle MON$ is 18 inches. All measurements are in inches.



$$PR = SLR$$

$$\frac{18}{27}$$

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

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

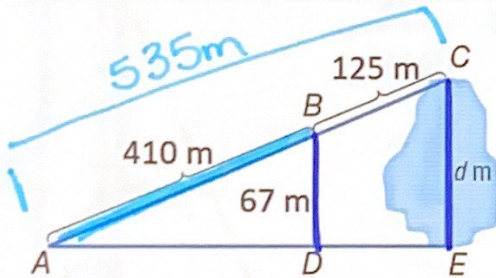
$$\frac{b}{6} = \frac{18}{27}$$

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

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

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

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.



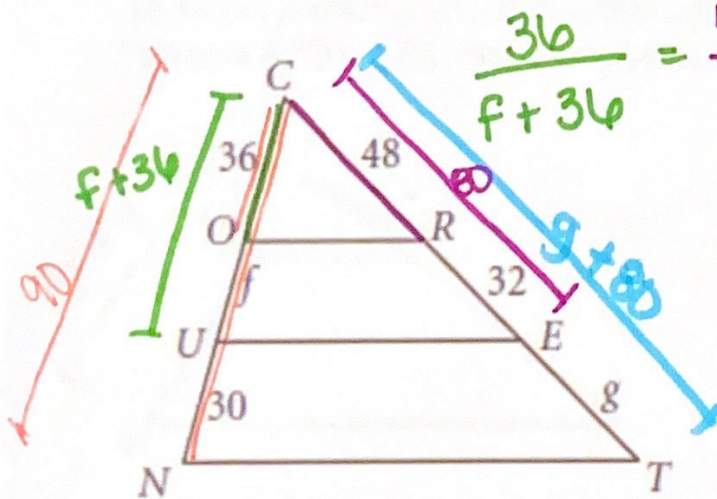
You must use full Δ sides
 $\ast 125$ is not a full Δ side.

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

$$d \approx 87.42682927$$

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

11. $OR \parallel UE \parallel NT$. Find f and g .



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

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

$$2880 = 48f + 1728$$

$$1152 = 48f$$

$$\boxed{24 = f}$$

$$\frac{g+80}{48} = \frac{90}{36}$$

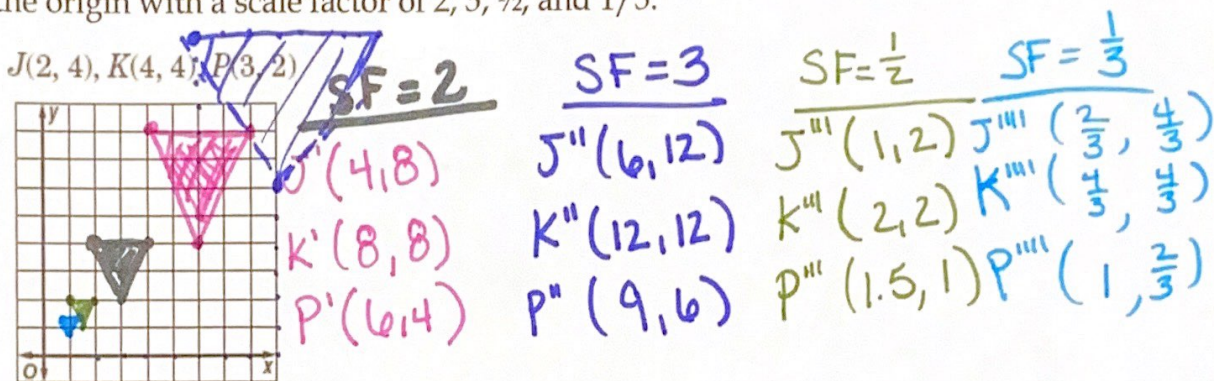
$$36(g+80) = 48 \cdot 90$$

$$36g + 2880 = 4320$$

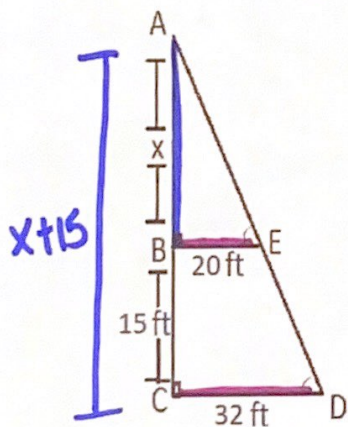
$$36g = 1440$$

$$\boxed{g = 40}$$

12. Find the image of the polygon, given the vertices, after a dilation centered at the origin with a scale factor of 2, 3, 1/2, and 1/3.



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



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

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

$$32x = 20x + 300$$

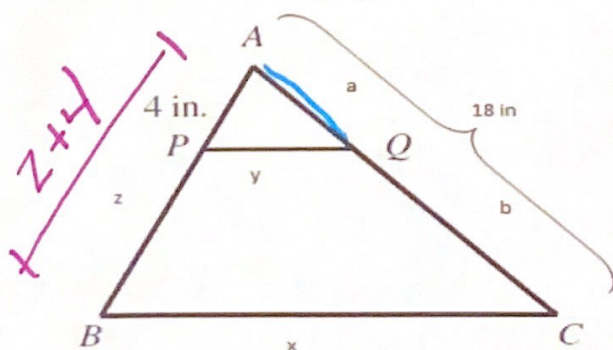
$$-20x \quad -20x$$

$$12x = 300$$

$$\boxed{x = 25}$$

$25ft = x$

14. Given $\triangle ABC \sim \triangle APQ$. If the perimeter of ABC is ~~51 in~~ 34 in and the perimeter of triangle APQ is ~~51 in~~ 18 in. Find all variables.



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

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

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

$$12 + b = 18$$

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

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

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

$$204 = 34z + 136$$

$$68 = 34z$$

$$\boxed{z = 2}$$

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

$$4 + 12 + y = 34$$

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

$$18 + x + 6 = 51$$

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