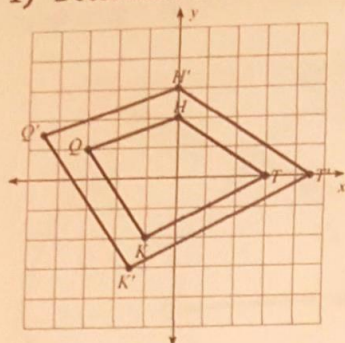


Unit 2 Study Guide Part 2

1) Determine the dilation scale factor.

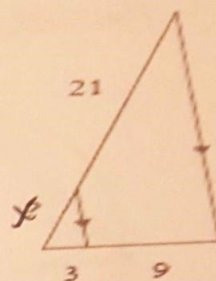


$H = (0, 2)$
 $H' = (0, 3)$
 $K = \frac{3}{2} = 1.5$

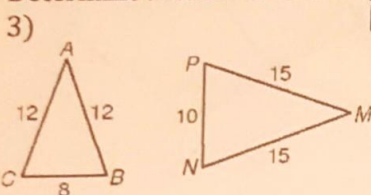
2) Find the missing side x.

$\frac{3}{9} = \frac{x}{21}$

$9x = 63$
 $x = 7$

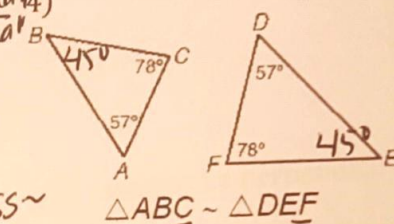


Determine if each set of triangles are similar by AA~, SAS~ or SSS~. Otherwise, write Not Possible.

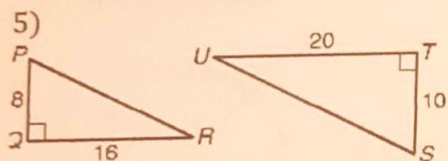


large = medium = small
 $\frac{\text{large}}{\text{large}} = \frac{\text{medium}}{\text{medium}} = \frac{\text{small}}{\text{small}}$

$\frac{15}{12} = \frac{15}{12} = \frac{10}{8}$
 $1.25 = 1.25 = 1.25$
 Yes ✓ SSS~



Yes, $\angle C \cong \angle F$
 $\angle A \cong \angle D$
 AA~

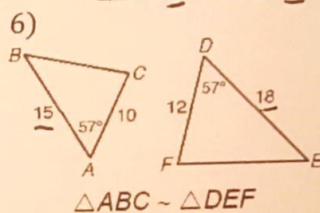
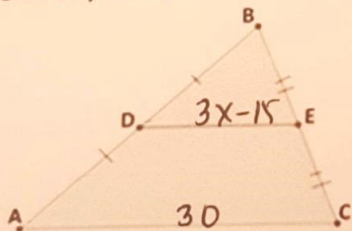


$\angle Q \cong \angle T$ ✓ SAS~

$\frac{20}{16} = \frac{10}{8} = 1.25$ Yes

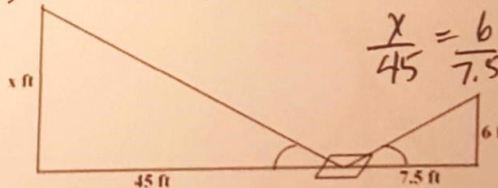
7) If $\overline{DE} = 3x - 15$ and $\overline{AC} = 30$, find x.

$2(3x - 15) = 30$
 $6x - 30 = 30$
 $6x = 60$
 $x = 10$



$\angle A \cong \angle D$ ✓
 $\frac{18}{15} = \frac{12}{10}$
 $1.2 = 1.2$
 SAS~

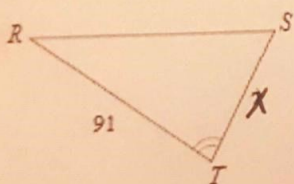
8) Find the length of x.



$\frac{x}{45} = \frac{6}{7.5}$

$7.5x = 270$
 $x = 36$

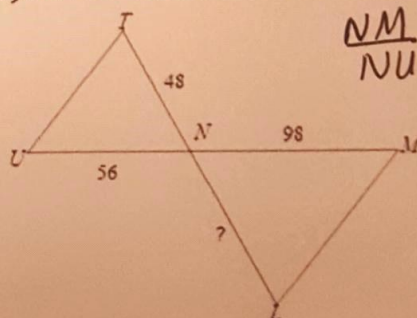
9) The triangles are similar. Find the missing side.



$\frac{52}{91} = \frac{32}{x}$

$52x = 2912$
 $x = 56$

10) $\triangle NML \sim \triangle NUT$. Find the missing side.



$\frac{NM}{NU} = \frac{NL}{NT}$

$\frac{98}{56} = \frac{x}{48}$

$56x = 4704$
 $x = 84$

11) Write an example of a scale factor that would create this transformation if the area of a triangle gets

- a) Smaller after the dilation $.25 = K$
- b) Larger after the dilation $4 = K$

12) Write an example of a scale factor that would create this transformation if the area of a triangle gets

- a) Smaller after the dilation $.25 = K$
- b) Larger after the dilation $4 = K$

- 13) At a certain time of day, a 12 meter flagpole casts an 8m shadow. How long is the tree's shadow?

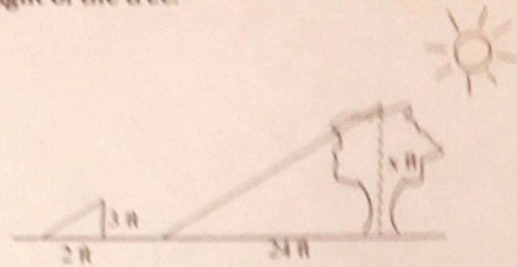


$$\frac{30}{s} = \frac{12}{8}$$

$$12s = 240$$

$$s = 20m$$

- 14) If a tree casts a 24-foot shadow at the same time that a yardstick casts a 2-foot shadow, find the height of the tree.

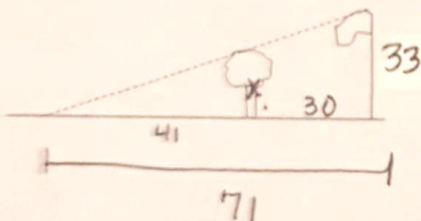


$$\frac{x}{24} = \frac{3}{2}$$

$$2x = 72$$

$$x = 36$$

- 15) On level ground, the base of a tree is 30 ft from the bottom of a 33-ft flagpole. The tree is shorter than the pole. At a certain time, their shadows end at the same point 71 ft from the base of the flagpole. How tall is the tree?

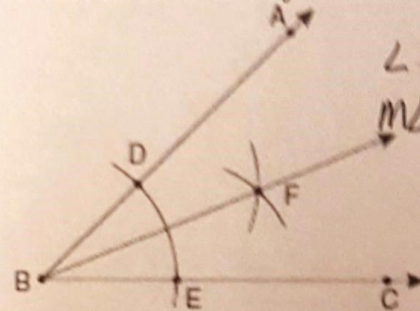


$$\frac{33}{71} = \frac{x}{41}$$

$$71x = 1353$$

$$x \approx 19.06 \text{ ft}$$

- 16) The diagram at the right shows the construction of the bisector of $\angle ABC$. What do you know?

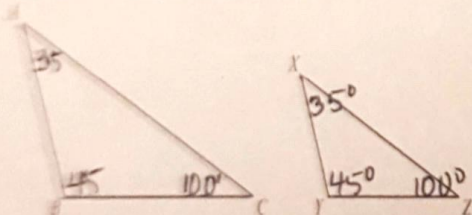


$$\angle ABF \cong \angle CBF$$

$$m\angle ABF = \frac{1}{2} m\angle ABC$$

$$m\angle CBF = \frac{1}{2} m\angle ABC$$

- 17) In the triangles shown, $\triangle ABC$ is dilated by a factor of $\frac{3}{5}$ to form $\triangle XYZ$. Given that $m\angle C = 45^\circ$ & $m\angle A = 35^\circ$, what is $m\angle Y$?

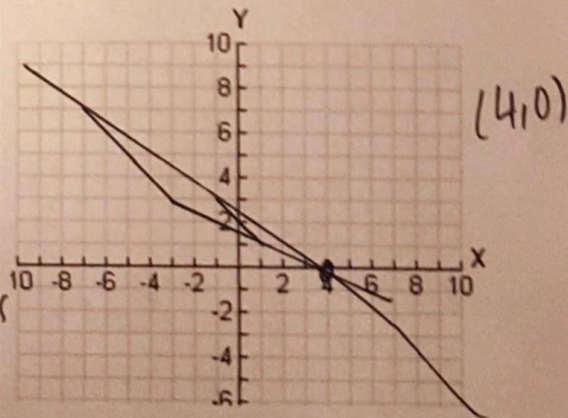


Angles are congruent in dilations

$$\angle Y = 45^\circ$$

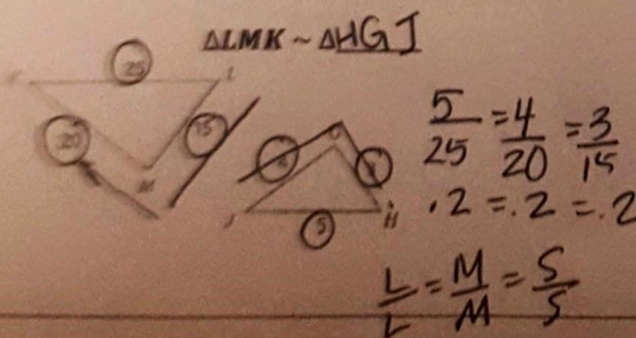
- 18) The line on the left was dilated by a scale factor of $\frac{1}{2}$.

Approximate the center of dilation.



(4, 0)

- 19) The triangles at the right are similar. Complete the similarity statement using the figures below.

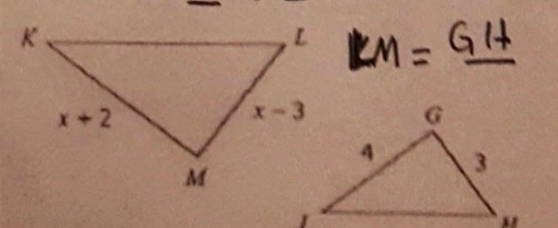


$$\frac{5}{25} = \frac{4}{20} = \frac{3}{15}$$

$$\cdot 2 = \cdot 2 = \cdot 2$$

$$\frac{L}{L} = \frac{M}{M} = \frac{S}{S}$$

- 20) Given $\triangle KLM \sim \triangle JHG$. Find x .



$$KM = 6$$

$$\frac{3}{x-3} = \frac{4}{x+2}$$

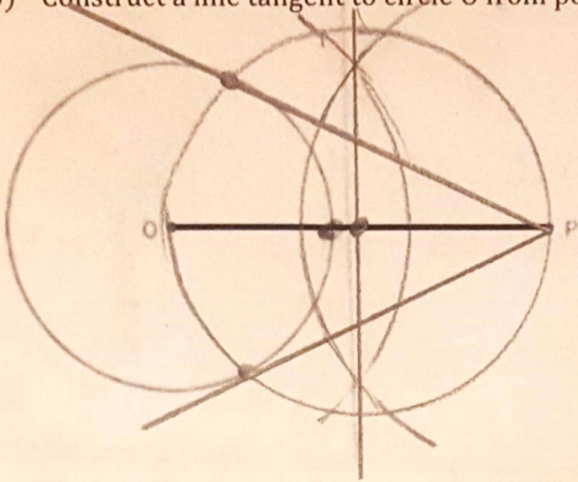
$$3x + 6 = 4x - 12$$

$$-4x = -18$$

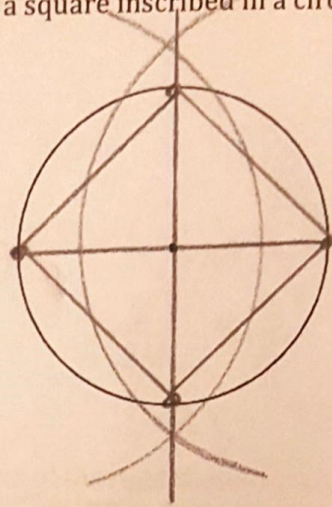
$$x = 18$$

For all by-hand constructions use a compass and straightedge. DO NOT erase your construction marks.

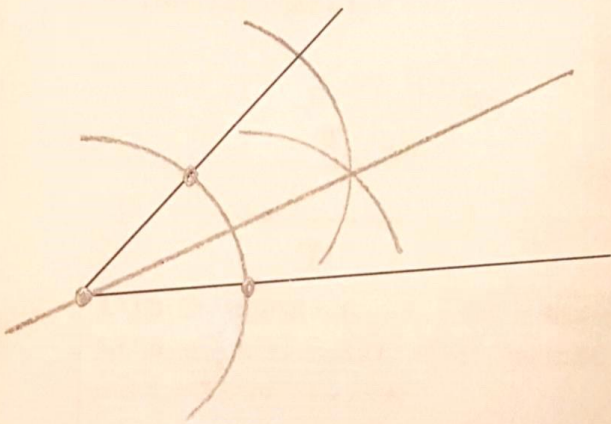
35) Construct a line tangent to circle O from point P.



36) Construct a square inscribed in a circle.



37) Bisect the angle.



38) Construct a perpendicular bisector.

