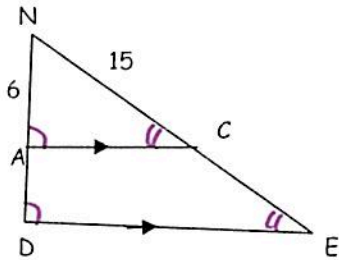


Directions: You MUST show all work to receive any credit **DIAGRAMS ARE NOT TO SCALE.**

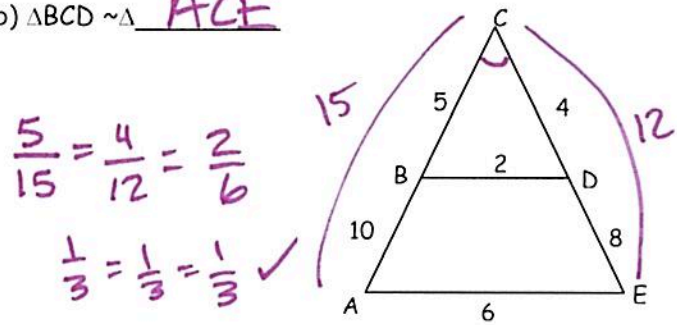
1. a) Give the postulate that proves the two triangles are similar? AA~

b) $\triangle ANC \sim \triangle DNE$



2. a) Which two reasons can you use to prove these two triangles are similar? SSS~ SAS~

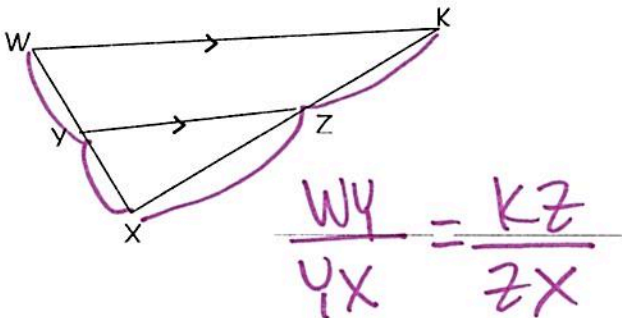
b) $\triangle ABC \sim \triangle ADE$



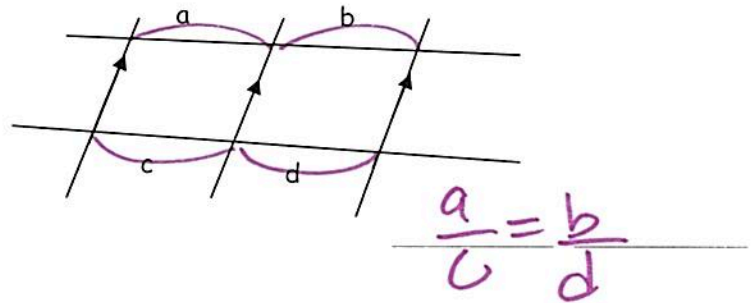
$$\frac{5}{15} = \frac{4}{12} = \frac{2}{6}$$

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

3. Write two true proportionality statements for each of the following diagrams.

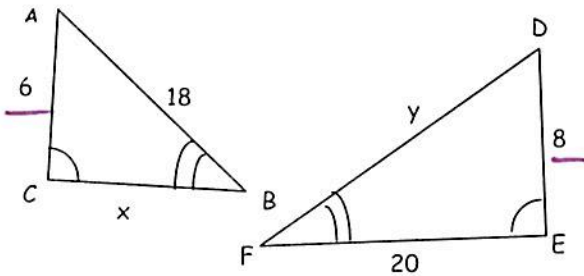


$$\frac{WY}{YX} = \frac{WZ}{ZX}$$



$$\frac{a}{c} = \frac{b}{d}$$

4. Solve for x and y.



$$\frac{6}{8} = \frac{x}{20}$$

$$8x = 120$$

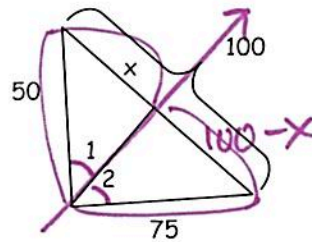
$$\boxed{x = 15}$$

$$\frac{6}{8} = \frac{18}{y}$$

$$144 = 6y$$

$$\boxed{y = 24}$$

5. Given $\angle 1 \cong \angle 2$, solve for x.



$$\frac{50}{x} = \frac{75}{100-x}$$

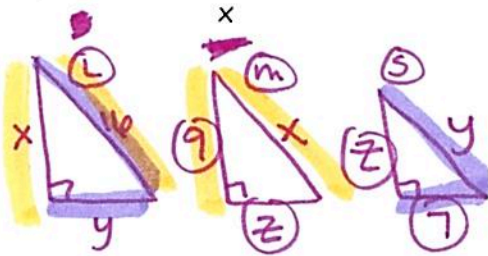
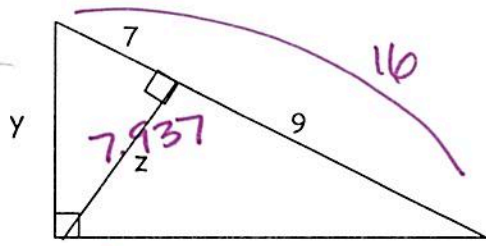
$$75x = 5000 - 50x$$

$$+50x$$

$$125x = 5000$$

$$\boxed{x = 40}$$

6. Solve for x, y and z.



$$\frac{x}{16} = \frac{9}{x}$$

$$x^2 = \sqrt{144}$$

$$x = 12$$

$$\frac{16}{y} = \frac{9}{7}$$

$$y^2 = \sqrt{112}$$

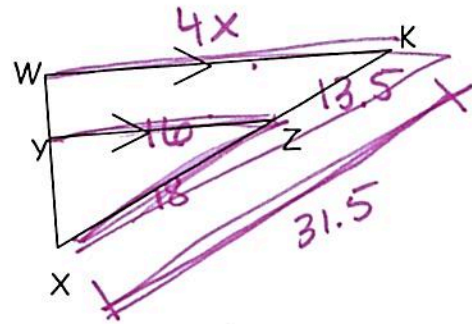
$$y = 10.583$$

$$\frac{9}{z} = \frac{z}{7}$$

$$z^2 = \sqrt{63}$$

$$z = 7.937$$

7. WK=4x, YZ=16, KZ=13.5, KX= 31.5.

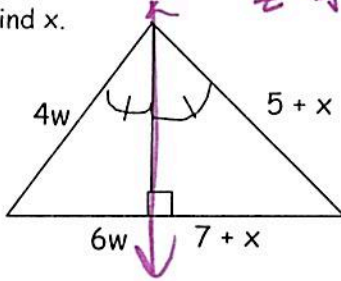


$$\frac{16}{4x} = \frac{13.5}{31.5}$$

$$\frac{72x}{72} = \frac{504}{72}$$

$$x = 7$$

8. Find x.



$$\frac{4w}{6w} = \frac{5+x}{7+x}$$

$$\frac{4}{6} = \frac{5+x}{7+x}$$

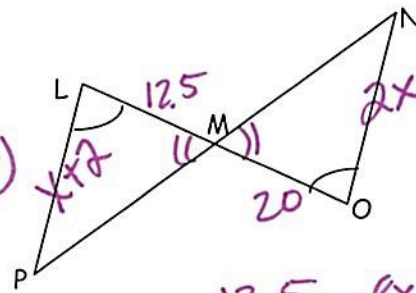
$$4(7+x) = 6(5+x)$$

$$28 + 4x = 30 + 6x$$

$$-2 = 2x$$

$$x = -1$$

9. LM=12.5, MO=20, LP=x+2, NO=2x.



$$\frac{12.5}{20} = \frac{x+2}{2x}$$

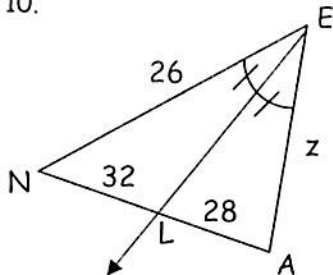
$$25x = 20x + 40$$

$$5x = 40$$

$$x = 8$$

Solve for the variables.

10.

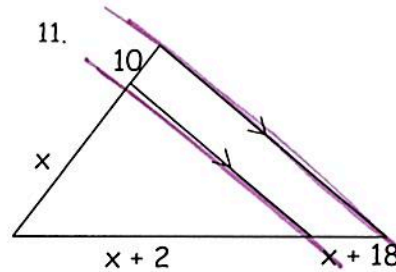


$$\frac{26}{32} = \frac{z}{28}$$

$$\frac{728}{32} = \frac{32z}{32}$$

$$z = 22.75$$

11.



$$\frac{x}{x+2} = \frac{10}{x+18}$$

$$x(x+18) = 10(x+2)$$

$$x^2 + 18x = 10x + 20$$

$$x^2 + 8x - 20$$

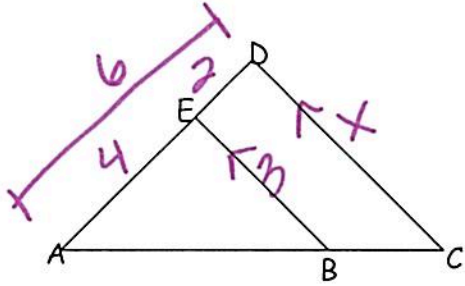
$$(x+10)(x-2)$$

$$x = -10 \quad x = 2$$

$$x = 2$$

12. $AD:ED = 6:2$, $BE=3$, $DC = \underline{\hspace{2cm}}$

In the triangle $\overline{EB} \parallel \overline{DC}$.

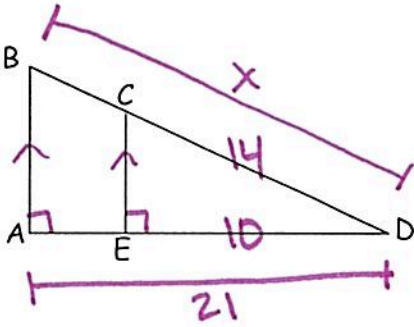


$$\frac{3}{x} = \frac{4}{6}$$

$$\frac{4x}{4} = \frac{18}{4}$$

$$x = 4.5$$

13. $\overline{CE} \parallel \overline{AB}$, $m\angle A = 90^\circ$,
 $CD = 14$, $DA = 21$, $DE = 10$,
 $BD = \underline{29.4}$, $BC = \underline{15.4}$



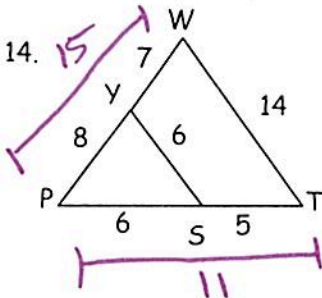
$$\frac{14}{10} = \frac{x}{21}$$

$$\frac{10x}{10} = \frac{294}{10}$$

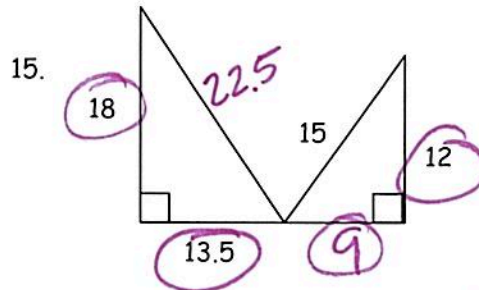
$$x = 29.4$$

$$\frac{-14}{15.4}$$

Are the triangles similar? If so, write a similarity statement, show your work and state the theorem or postulate supports your answer.



NO



$$\frac{13.5}{9} = \frac{18}{12}$$

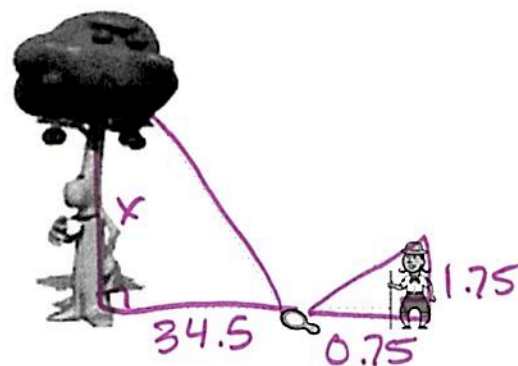
yes

16. To estimate the height of a tree, a girl scout sights the top of the tree in a mirror that is 34.5 meters from the tree. The mirror is on the ground and faces upward. The scout is 0.75 meters from the mirror, and distance from her eyes to the ground is about 1.75 meters. How tall is the tree?

$$\frac{x}{34.5} = \frac{1.75}{0.75}$$

$$.75x = 60.375$$

$$x = 80.5$$

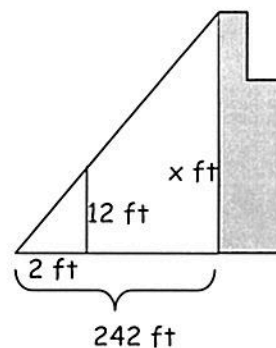


17. Josh wanted to measure the height of the Sears Tower in Chicago. He used a 12-foot light pole and measured its shadow at 1 p.m. The length of the shadow was 2 feet. Then he measured the length of Sears Tower's shadow and it was 242 feet at the same time. What is the height of the Sears Tower?

$$\frac{2}{12} = \frac{242}{x}$$

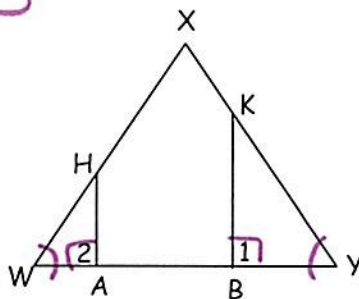
$$2x = 2904$$

$$x = 1452$$



18. Given: $\angle W \cong \angle Y$, $\overline{HA} \perp \overline{WY}$, $\overline{KB} \perp \overline{WY}$

Prove: $\frac{AW}{BY} = \frac{AH}{BK}$



Statements	Reasons
1. $\angle W \cong \angle Y$ $\overline{HA} \perp \overline{WY}$ $\overline{KB} \perp \overline{WY}$	1. Given
2. $\angle 1$ and $\angle 2$ are right \angle 's	2. Def. of \perp
3. $\angle 1 \cong \angle 2$	3. Right \angle Cong. Thm
4. $\triangle HWA \sim \triangle KYB$	4. AA \sim
5. $\frac{AW}{BY} = \frac{AH}{BK}$	5. Def. of similar \triangle