

1. Determine if the following triangles are similar and show how you decided. If they are similar write a similarity statement.

a.   
 Congruent  $\angle$ 's  
 $\angle T \cong \angle X$   
 $\angle VUX \cong \angle WUT$  by Vertical  $\angle$ 's  
 $\triangle WUT \sim \triangle VUX$  by AA

b.   
 Proportional Sides  
 $\frac{16}{12} = \frac{12}{9} = \frac{8}{6}$   
 $1.5 = 1.5 = 1.5 \checkmark$   
 $\triangle ABC \sim \triangle DFE$  by SSS

c.   
 S S  
 It cannot be proven that  $\triangle ABC$  is similar to  $\triangle PRQ$  with the information provided

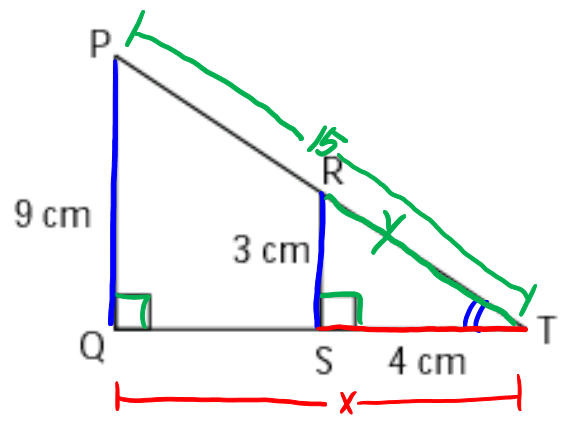
d.   
 Triangle Sum Thm.  
 $90 + 55 = 145$   
 $180 - 145 = 35$   
 Congruent  $\angle$ 's  
 $\angle B \cong \angle E$  by A sum thm.  
 $\angle C \cong \angle F$

2. Looking at the triangles in the figure on the right:

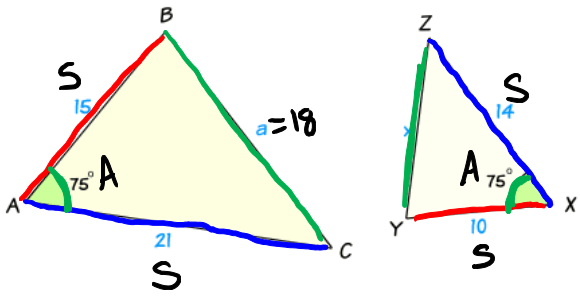
a. Are the two triangles similar? How do you know?  
 $\angle PQT \cong \angle RST$   
 $\angle QTP \cong \angle STR$  by Reflexive Prop.  $\triangle QTP \sim \triangle STR$  by AA

b. What is the length of QT?  
 $\frac{9}{3} = \frac{x}{4}$   $3x = 36$   $x = 12$

c. If PT is 15 cm, what is the length of RT?  
 $\frac{9}{3} = \frac{15}{y}$   $9y = 45$   $y = 5$



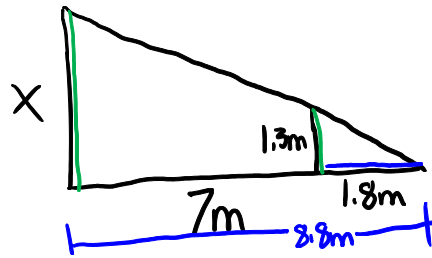
3. Is the following pair of triangles similar? What postulate/theorem could you use? Show your work.



Congruent  $\angle$ 's  $\angle X \cong \angle A$   
 prop. sides  $\frac{21}{14} = \frac{15}{10}$   
 $1.5 = 1.5$   
 $\triangle ABC \sim \triangle XYZ$  by SAS

If  $a = 18$  what is the value of x?  
 $\frac{18}{x} = \frac{21}{14}$   $21x = 252$   $x = 12$

4. Tonya is 1.3 meters tall. She stands 7 meters in front of a tree and casts a shadow 1.8 meters long. How tall is the tree?

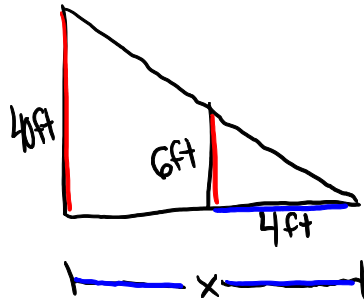


$$\frac{8.8}{1.8} = \frac{X}{1.3}$$

$$1.8X = 11.44$$

$$X = 6.36 \text{ m}$$

5. Stanwick is 6ft tall. The telephone pole he is standing next to is 40 ft tall. If Stanwick's shadow is 4 ft, how long is the shadow of the telephone pole?



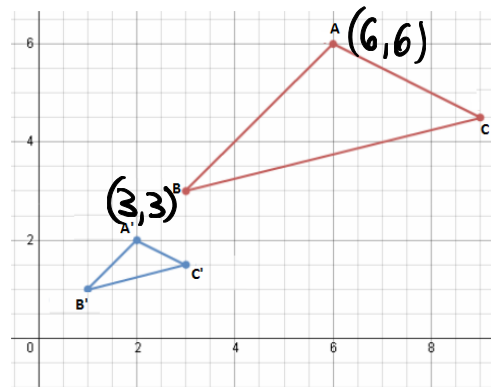
$$\frac{40}{6} = \frac{X}{4}$$

$$6X = 160$$

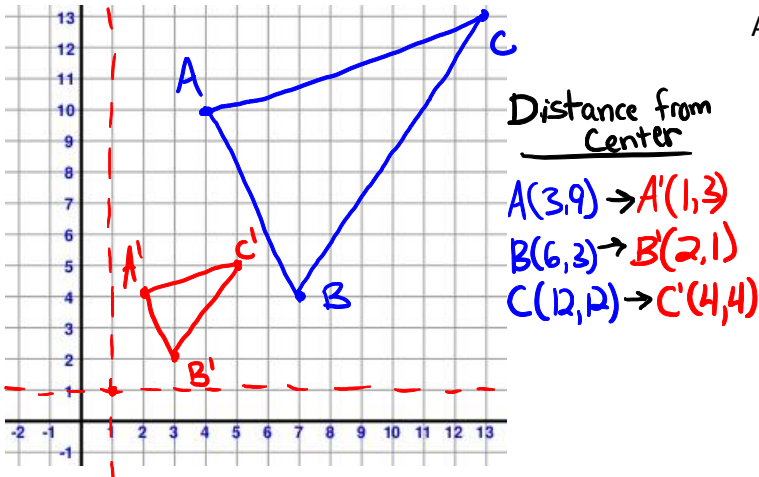
$$X = 26.\overline{66} \text{ ft}$$

6. Identify the image, pre-image, dilation, and scale factor of the following dilation with a center at the origin.

image:  $\triangle A'B'C'$   
 pre image:  $\triangle ABC$   
 Dilation: Reduction  
 scale factor:  $\frac{3}{6} = \frac{1}{2}$



7. Under a dilation of scale factor  $\frac{1}{3}$  with center at the (1,1) if A is (4,10), B is (7,4), C is (13, 13), what would the coordinates for A', B' and C' be?



8. Under a dilation of scale factor 3 with center at (2, -2). ) if A is (-1,-1), B is (-2,-2), C is (-2, 1), and D is (-1,2) what would the coordinates for A', B', C' and D' be?

