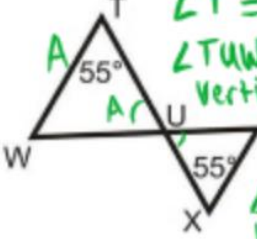
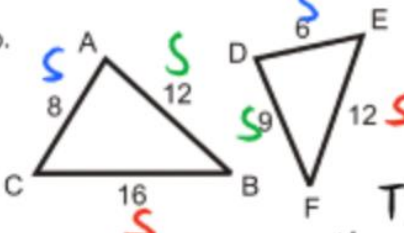
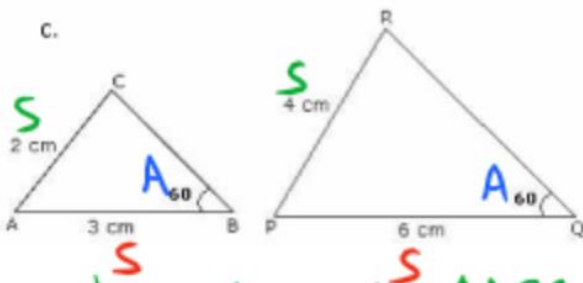
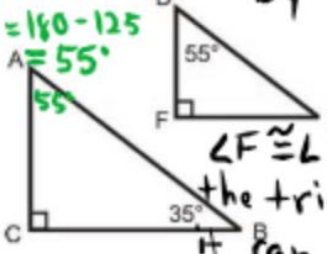


1. Determine if the following triangles are similar and show how you decided. If they are similar write a similarity statement.

a.   $\angle T \cong \angle X$  and  $\angle TUV \cong \angle XVU$  by vertical  $\angle$ 's theorem. Thus,  $\Delta TUV \sim \Delta XVU$  by AA.

b.   $\frac{16}{12} = \frac{12}{9} = \frac{8}{6}$   
 $\frac{4}{3} = \frac{4}{3} = \frac{4}{3}$   
 The corresponding sides are all proportional. Thus  $\Delta ABC \sim \Delta DEF$  by SSS.

c. 

d.   $m\angle A = 180 - (90 + 35)$   
 $m\angle A = 180 - 125$   
 $\angle A = 55^\circ$   
 $\angle F \cong \angle C$  and by the triangle sum thm. It can be found that  $\angle A \cong \angle D$ . Thus,  $\Delta ABC \sim \Delta DEF$  by AA.

It cannot be shown that  $\Delta ABC \sim \Delta PQR$  with the given information.

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

a. Are the two triangles similar? How do you know?

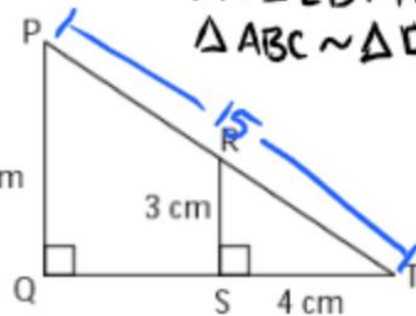
Yes by AA.  $\angle PQS \cong \angle RST$  and  $\angle PTS \cong \angle RTS$  by reflexive prop.

b. What is the length of QT?

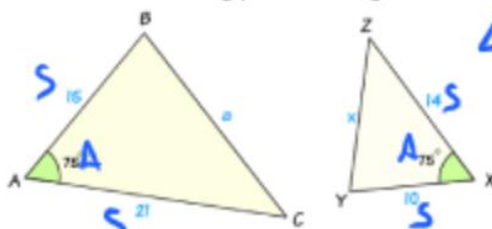
$$\frac{9}{3} = \frac{x}{4} \quad 3x = 36 \quad x = 12$$

c. If PT is 15 cm, what is the length of RT?

$$\frac{9}{3} = \frac{15}{x} \quad 9x = 45 \quad x = 5$$



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



$\angle A \cong \angle X$  and corresponding sides are proportional so  $\Delta ABC \sim \Delta XYZ$  by SAS.

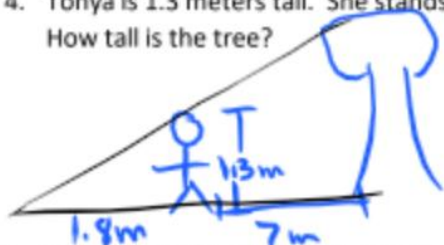
If  $a = 18$  what is the value of  $x$ ?

$$\frac{18}{x} = \frac{15}{10} \quad \frac{15x}{15} = \frac{180}{15} \quad x = 12$$

$$\frac{21}{14} = \frac{15}{10}$$

$$1.5 = 1.5 \checkmark$$

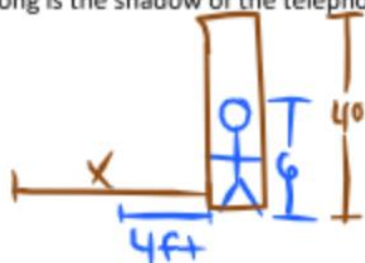
4. Tonya is 1.3 meters tall. She stands 7 meters in front of a tree and casts a shadow 1.8 meters long. How tall is the tree?



The shadow of the tree hits at the end of her shadow.

$$\frac{1.3}{1.8} = \frac{x}{8.8} \quad \frac{1.8x}{1.8} = \frac{11.44}{1.8} \quad x = 6.35\overline{m}$$

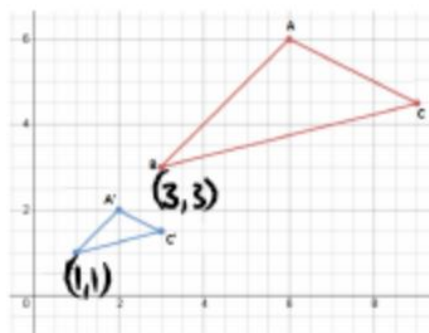
5. Stanwick is 6ft tall. The telephone pole he is standing next to is 40 ft tall. If Stanwick's shadow is 4 ft, how long is the shadow of the telephone pole?



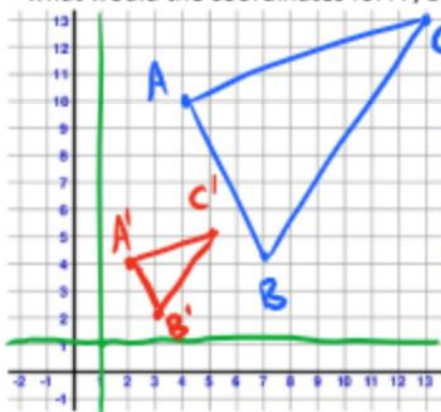
$$\frac{6}{4} = \frac{40}{x} \quad \frac{6x}{6} = \frac{160}{6} \quad x = 26.\overline{66} \text{ ft}$$

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

image:  $A'B'C'$   
 preimage:  $ABC$   
 Dilation: Reduction  
 Scale factor:  $K = \frac{1}{3}$

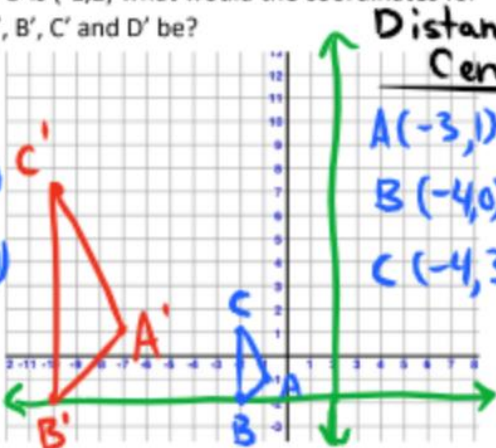


7. Under a dilation of scale factor  $\frac{1}{3}$  with center at the  $(1,1)$  if  $A$  is  $(4,10)$ ,  $B$  is  $(7,4)$ ,  $C$  is  $(13,13)$ , what would the coordinates for  $A'$ ,  $B'$  and  $C'$  be?



Distance from Center  
 $A(3,9) \rightarrow A'(1,3)$   
 $B(6,3) \rightarrow B'(2,1)$   
 $C(12,12) \rightarrow C'(4,4)$

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?



Distance from Center  
 $A(-3,1) \rightarrow A'(-9,3)$   
 $B(-4,0) \rightarrow B'(-12,0)$   
 $C(-4,3) \rightarrow C'(-12,9)$