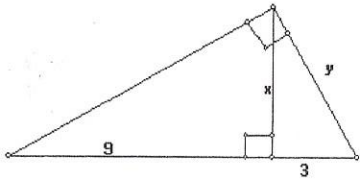


### Problem #1

Solve for x and y (leave answers as simplified radicals)

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

$$x = \sqrt{27} = 5.2$$



$$\frac{y}{12} = \frac{3}{y}$$

$$y = 6$$

### Problem #2

$\triangle CAT$  maps to  $\triangle DOG$  with the following transformation:

$$(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$$

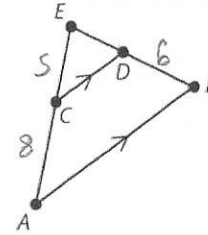
a. If  $m\angle A = 20$  and  $m\angle D = 83$ , what is  $m\angle G$ ? **77**

b. Given  $T(6, -3)$ , where is point  $G$ ?  **$\left(3, -\frac{3}{2}\right)$**

c. If  $DO = 15$ , what is  $CA$ ? **30**

### Problem #3

In  $\triangle AEB$ ,  $\overline{CD}$  is parallel to  $\overline{AB}$ .



a) Complete the proportions.

$$\frac{ED}{DB} = \frac{EC}{CA}$$

$$\frac{EA}{CA} = \frac{EB}{DB}$$

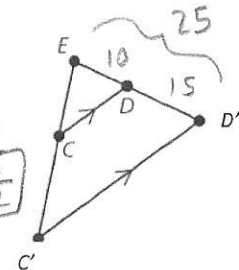
b) If  $EC = 5$ ,  $CA = 8$ , &  $DB = 6$ , solve for  $ED$ :

$$\frac{5}{8} = \frac{x}{6}$$

$$x = \frac{15}{4} = 3.75$$

### Problem #4

$\overline{C'D'}$  is a dilation of  $\overline{CD}$ .  $ED = 10$ ,  $DD' = 15$



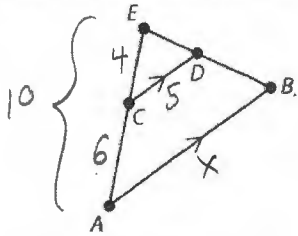
a) What is the scale factor of the dilation?

b) Reduction or Enlargement?

$$\frac{25}{10} = \frac{5}{2}$$

### Problem #5

In  $\triangle AEB$ ,  $\overline{CD}$  is parallel to  $\overline{AB}$ .



$$\frac{4}{10} = \frac{5}{x}$$

$$4x = 50$$

$$x = \frac{50}{4} = 12.5$$

a) Are  $\triangle AEB$  and  $\triangle CED$  similar?

If yes, by what property?

yes, AA~

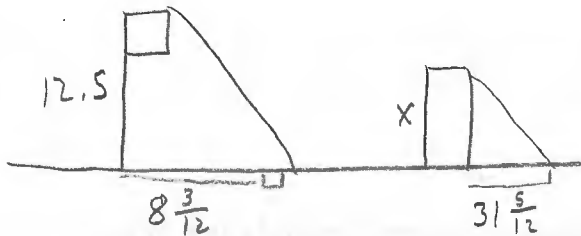
b)  $CE = 4$ ,  $AC = 6$  and  $CD = 5$ .

Solve for AB.

12.5

### Problem #6

A flagpole 12.5 feet tall casts a shadow 8 feet 3 inches long. At the same time, a building nearby casts a shadow 31 feet 5 inches long. How tall is the building? (Round to the nearest foot)

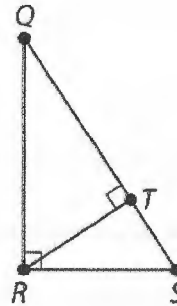


$$\frac{12.5}{8\frac{3}{12}} = \frac{x}{31\frac{5}{12}}$$

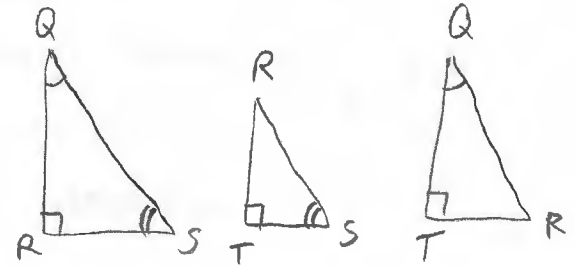
$$x = 47.6 \rightarrow 48 \text{ ft.}$$

### Problem #7

Complete the similarity statement for the triangles.

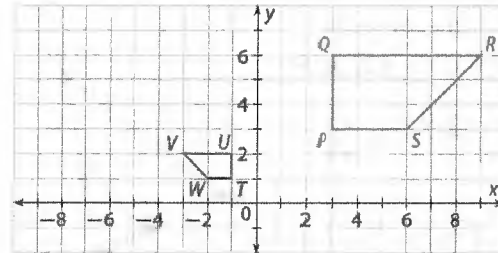


$$\triangle QRS \sim \triangle RTS \sim \triangle QTR$$



### Problem #8

a. Describe a sequence of transformations that maps PQRS to TUVW.



dilation, s.f. = 1/3  
reflect over y-axis

b. Provide the coordinate notation for each transformation.

$$(x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$$

$$(x, y) \rightarrow (-x, y)$$