

Key

Solve each proportion by using cross-products.

1.  $\frac{9}{28} = \frac{x}{84}$

$$\frac{28x}{28} = \frac{756}{28}$$

$$x = 27$$

2.  $\frac{3}{18} = \frac{4x}{7}$

$$\frac{72x}{72} = \frac{21}{72}$$

$$x = 0.29$$

3.  $\frac{3}{b+16} = \frac{4}{48}$

$$144 = 4b + 64$$

$$-64 \quad -64$$


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$$\frac{80}{4} = \frac{4b}{4} \quad b = 20$$

4.  $\frac{5}{k+17} = \frac{8}{152}$

$$8k + 136 = 760$$

$$8k = 624 \quad k = 78$$

5.  $\frac{x+5}{7} = \frac{x+3}{5}$

$$5x + 25 = 7x + 21$$

$$-5x \quad -5x$$


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$$25 = 2x + 21 \quad x = 2$$

Write each ratio in lowest terms.

6. A soccer team played 25 games and won 17.  
 a. What is the ratio of the number of wins to the number of loses?

$$8 \text{ loses} \quad \frac{17}{6}$$

- b. What is the ratio of the number of games played to the number of games won?

$$\frac{25}{17}$$

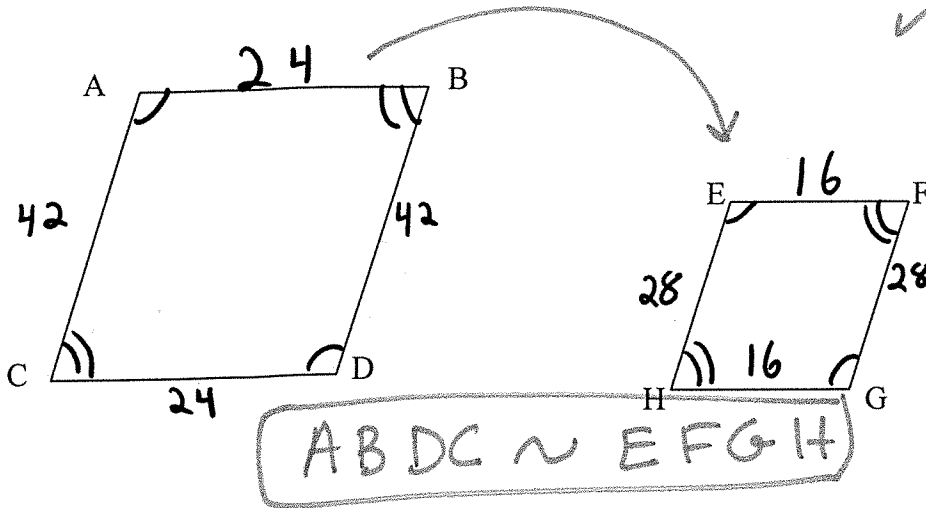
7. In a senior class, there are 260 boys and 120 girls graduating. Express the ratio of the number of boys graduating to the total number in the class.

Simplify  $\frac{260}{380} = \frac{13}{19}$

8. A scale model of a tower is 12 in long. The actual tower is 20 feet long. What is the ratio of the length of the actual tower to the model tower? (12 in = 1 ft)

$$\frac{20 \text{ ft} \times 12 \text{ in}}{12 \text{ in}} = 20 \text{ in}$$

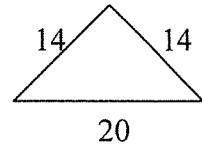
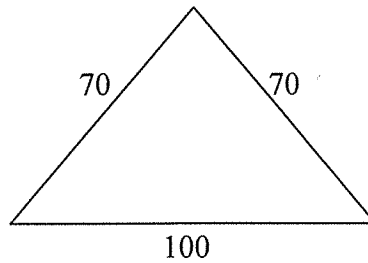
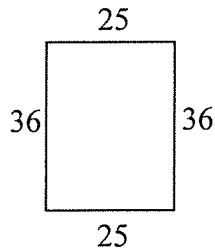
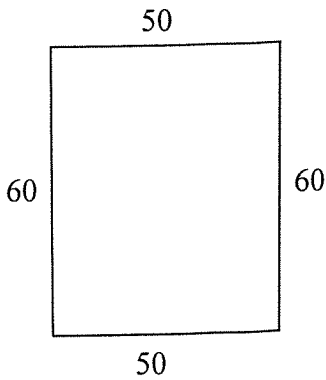
9. Explain why the figures are similar and write the similarity statement.



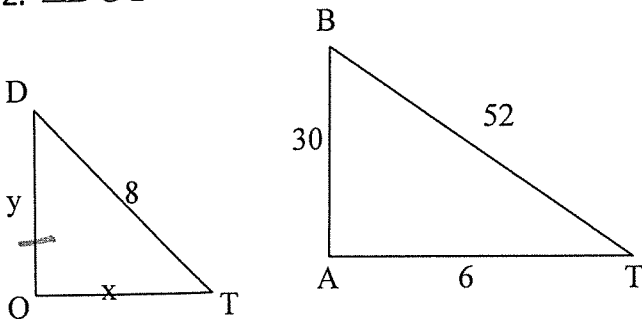
✓ Same angles  
 ✓  $\frac{24}{16} = \frac{42}{28} \approx 1.5$   
 Same scale factor

10. Similar? yes  no   
 If yes, scale factor (left to right) \_\_\_\_\_

11. Similar? yes  no   
 If yes, scale factor (left to right) 5



12.  $\triangle DOT \sim \triangle BAT$



Find x and y

Find y

$$\frac{y}{30} = \frac{8}{52}$$

$$\frac{52y}{52} = \frac{240}{52}$$

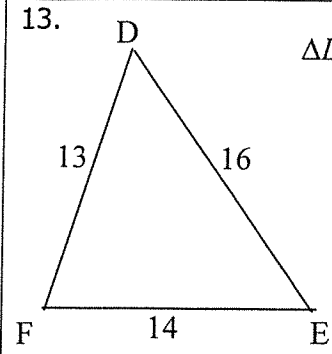
$$y = 4.6$$

Find x

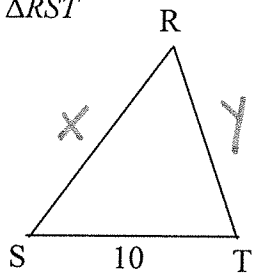
~~$$\frac{x}{6} = \frac{8}{52}$$~~

$$\frac{52x}{52} = \frac{48}{52}$$

$$x = 0.92$$



$\triangle DEF \sim \triangle RST$



~~$\frac{13}{y} = \frac{14}{10}$~~

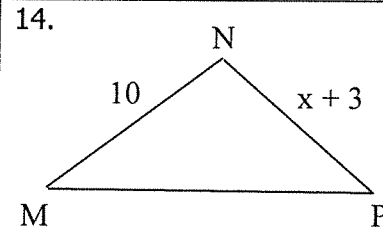
$\frac{16}{x} = \frac{14}{10}$

RS =  $x = 11.4$

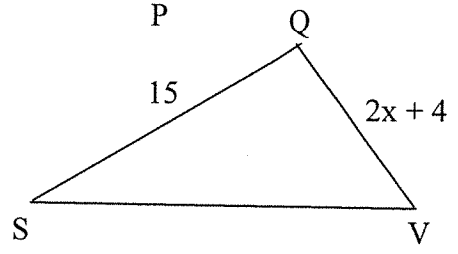
TR =  $y = 9.3$

$\frac{14y}{14} = \frac{130}{14} = 9.3$

$\frac{160}{14} = \frac{14x}{14} = 11.43$



$\triangle MNP \sim \triangle SQV$



$\frac{10}{15} = \frac{x+3}{2x+4}$

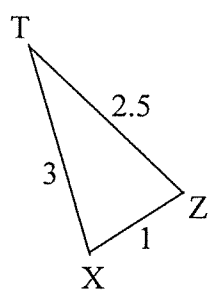
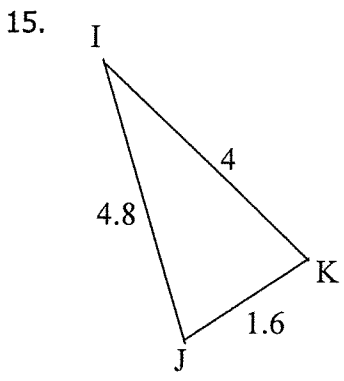
$20x + 40 = 15x + 45$

$5x = 5$

$x = 1$

$x = \underline{1}$   
 NP =  $4$   
 QV =  $6$

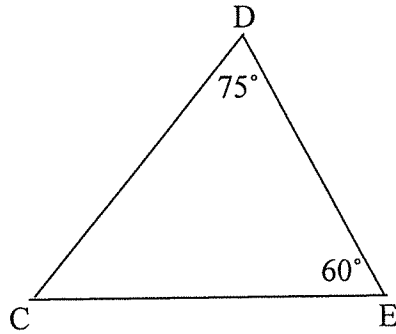
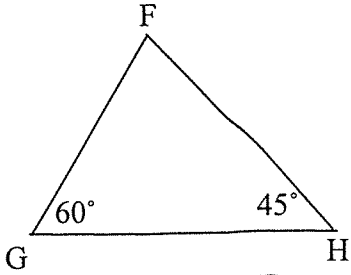
For # 15-17, Determine whether each pair of triangles is similar. If the triangles are similar, justify your answer by using SSS, SAS, and AA. Make sure you have work to support your answer.



$\checkmark \frac{4.8}{3} \stackrel{?}{=} \frac{4}{2.5} \stackrel{?}{=} \frac{1.6}{1} \approx 1.6$

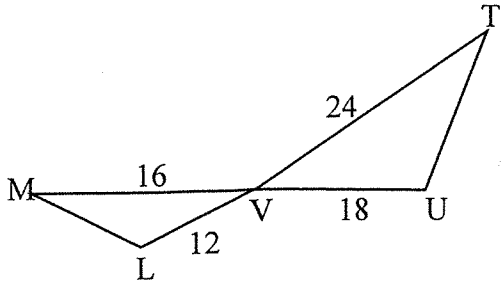
$\triangle IJK \sim TXZ$  by SSS

16.



$\angle G \cong \angle E$   
 $\angle H \cong \angle C$  Some of angles of a triangle  
 $\triangle FGH \sim \triangle DEC$  by AA

17.

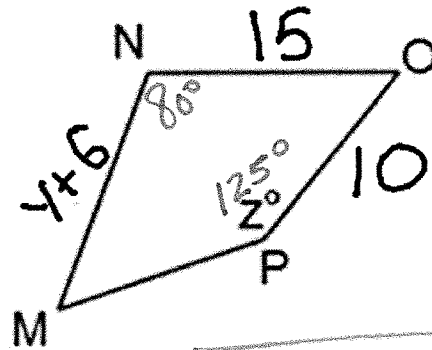
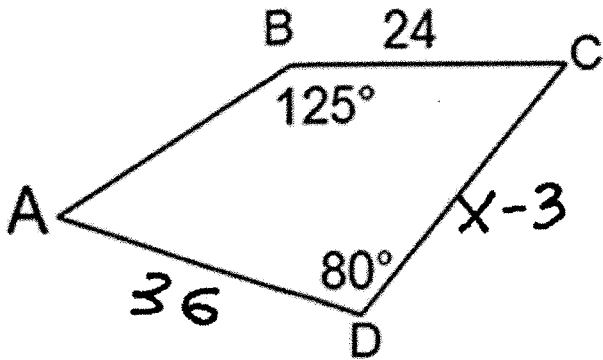


$\checkmark \angle MVL \cong \angle TVU$  Vertical angles

$\checkmark \frac{24}{16} \stackrel{?}{=} \frac{18}{12} \approx 1.5$

$\triangle MLV \sim \triangle TVU$  by SAS

18.  $ABCD \sim MPON$



$z = 125^\circ$

Solve for  $x$  and  $y, z$

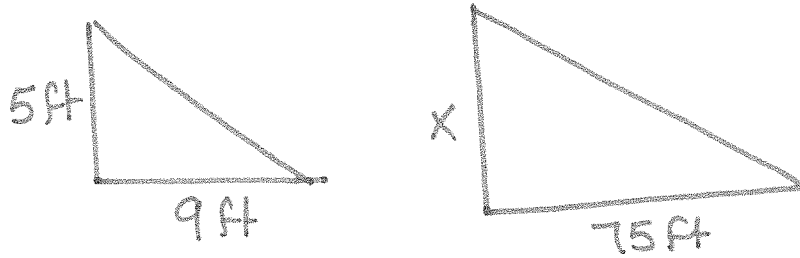
$\frac{x-3}{15} = \frac{24}{10}$

$x = 39$

$\frac{y+6}{36} = \frac{10}{24}$

$y = 9$

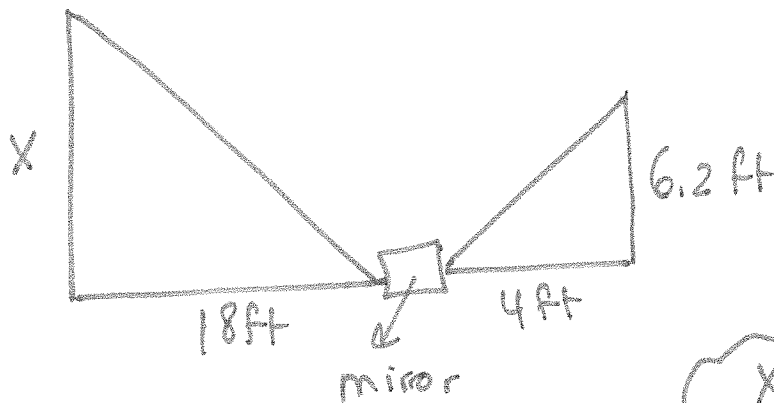
19. A Girl, 5ft tall, stays in the front of a pole. If the Girl's shadow is 9ft and the pole's shadow is 75ft, how tall is the pole? Draw a picture, set up a proportion, and solve



$$\frac{5}{x} = \frac{9}{75}$$

$$x = 41.7 \text{ ft}$$

26. Ahmad would like to know how tall a tree is. To find the answer he does the following: places a mirror on the ground 18ft from the tree, he continues to move away from the tree 4ft from the mirror. Now he can see the top of the tree reflected in the mirror. If Ahmad is 6.2 ft tall, how tall is the tree?



$$\frac{x}{6.2} = \frac{18}{4}$$

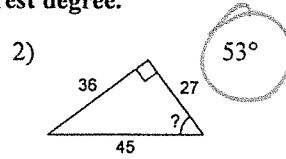
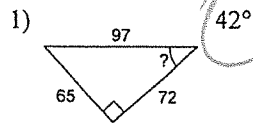
$$4x = 11.6$$

$$x = 27.9 \text{ ft}$$

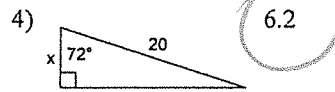
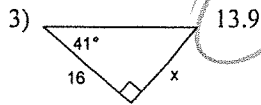


## Prior Knowledge Review

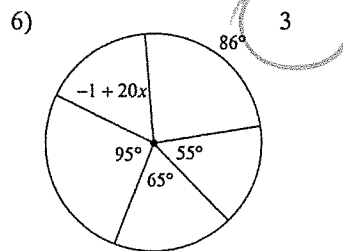
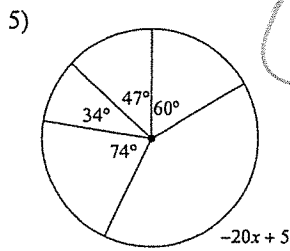
Find the measure of the indicated angle to the nearest degree.



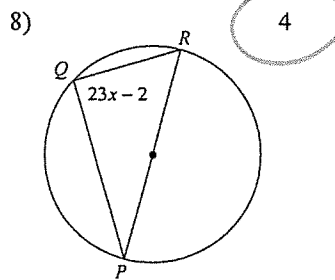
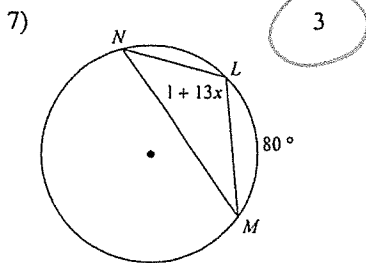
Find the missing side. Round to the nearest tenth.



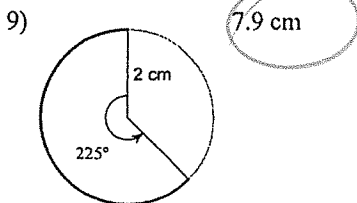
Solve for  $x$ . Assume that lines which appear to be diameters are actual diameters.



Solve for  $x$ .



Find the length of each arc. Round your answers to the nearest tenth.



Find the area of each sector. Round your answers to the nearest tenth.

