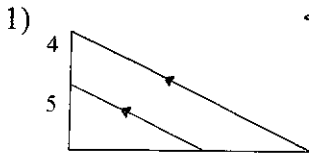


Unit 2 Test Review

Date \_\_\_\_\_ Period \_\_\_\_\_

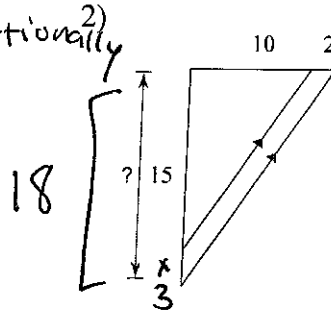
Find the missing length indicated.



$$\frac{4}{5} \propto \frac{8}{x}$$

$$\frac{4x}{4} = \frac{40}{4} \quad \boxed{x=10}$$

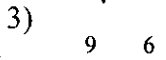
parallel lines  $\rightarrow$   
cut sides proportionally



$$\frac{10}{2} \propto \frac{15}{x}$$

$$\frac{10x}{10} = \frac{30}{10}$$

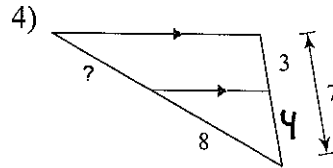
$$x=3$$



$$\frac{9}{6} \propto \frac{x}{14}$$

$$\frac{6x}{6} = \frac{126}{6}$$

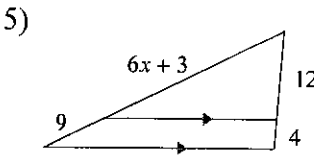
$$\boxed{x=21}$$



$$\frac{3}{4} \propto \frac{x}{8}$$

$$\frac{4x}{4} = \frac{240}{4} \quad \boxed{x=6}$$

Solve for x.

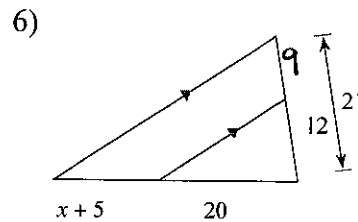


$$\frac{6x+3}{9} \propto \frac{12}{4}$$

$$4(6x+3) = 108$$

$$24x + 12 = 108$$

$$\begin{array}{r} -12 \\ -12 \\ \hline 24x = 96 \\ \hline 24 \quad 24 \\ \hline x = 4 \end{array}$$

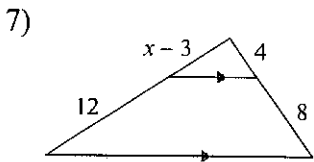


$$\frac{9}{12} \propto \frac{x+5}{20}$$

$$12(x+5) = 180$$

$$12x + 60 = 180$$

$$\begin{array}{r} -60 \\ -60 \\ \hline 12x = 120 \\ \hline 12 \quad 12 \\ \hline x = 10 \end{array}$$



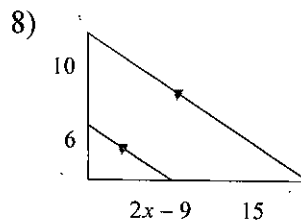
$$\frac{x-3}{12} \propto \frac{4}{8}$$

$$8(x-3) = 48$$

$$8x - 24 = 48$$

$$\begin{array}{r} +24 \\ +24 \\ \hline 8x = 72 \\ \hline 8 \quad 8 \\ \hline x = 9 \end{array}$$

$$\boxed{x=9}$$



$$\frac{10}{6} \propto \frac{15}{2x-9}$$

$$10(2x-9) = 90$$

$$20x - 90 = 90$$

$$\begin{array}{r} +90 \\ +90 \\ \hline 20x = 180 \\ \hline 20 \quad 20 \\ \hline x = 9 \end{array}$$

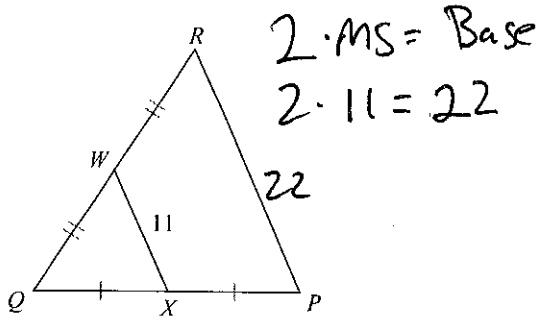
$$\boxed{x=9}$$

$$\begin{array}{r} 20x = 270 \\ \hline 20 \quad 20 \\ \hline x = 13.5 \end{array}$$

Because sides are cut congruently,  
the line segments are mid segments

Find the missing length indicated.

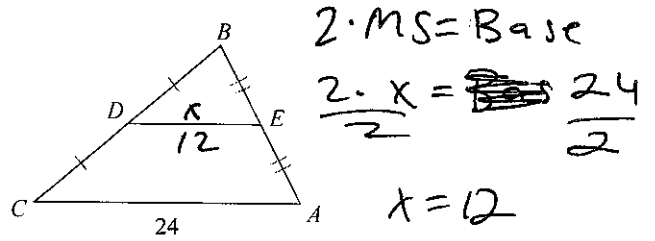
9) Find PR



$$2 \cdot MS = \text{Base}$$

$$2 \cdot 11 = 22$$

10) Find DE



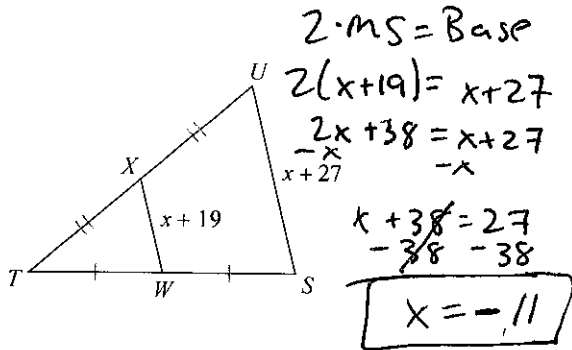
$$2 \cdot MS = \text{Base}$$

$$\frac{2 \cdot x}{2} = \frac{24}{2}$$

$$x = 12$$

Solve for x.

11)



$$2 \cdot MS = \text{Base}$$

$$2(x+19) = x+27$$

$$2x+38 = x+27$$

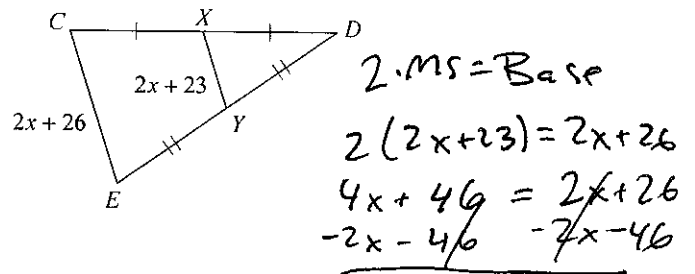
$$-x \quad -x$$

$$x+38 = 27$$

$$-38 \quad -38$$

$$x = -11$$

12)



$$2 \cdot MS = \text{Base}$$

$$2(2x+23) = 2x+26$$

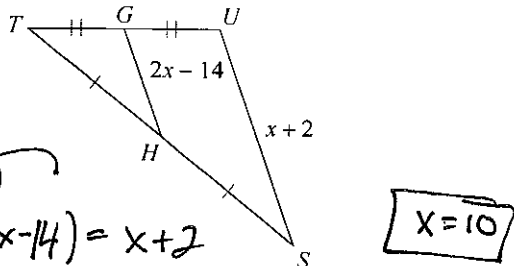
$$4x+46 = 2x+26$$

$$-2x \quad -2x$$

$$-46 \quad -46$$

$$\frac{2x}{2} = \frac{-20}{2}$$

13)



$$2(2x-14) = x+2$$

$$4x-28 = x+2$$

$$-x \quad -x$$

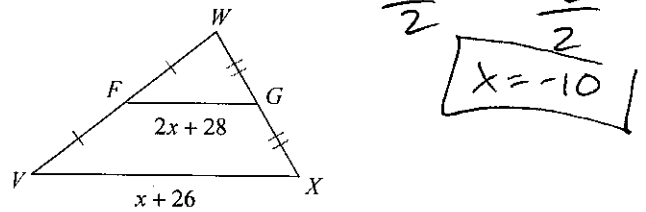
$$3x-28 = 2$$

$$+28 \quad +28$$

$$\frac{3x}{3} = \frac{30}{3}$$

$$x = 10$$

14)



$$2(2x+28) = x+26$$

$$4x+56 = x+26$$

$$-3x \quad -3x$$

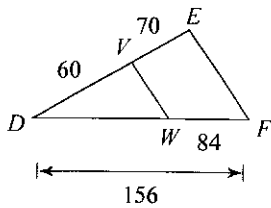
$$-30 \quad -30$$

$$\frac{3x}{3} = \frac{-30}{3}$$

$$x = -10$$

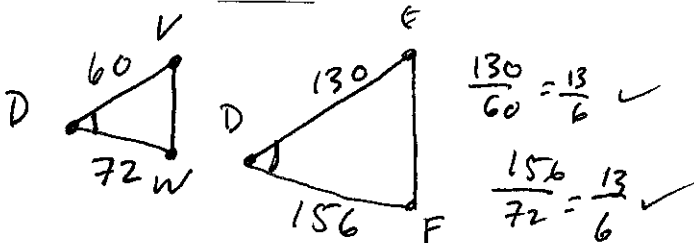
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

15)



SAS ~

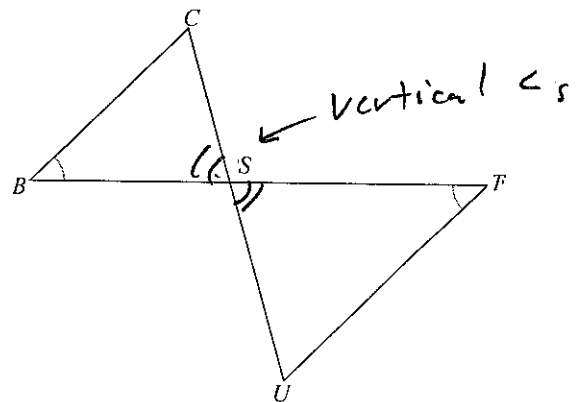
$$\triangle DEF \sim \triangle DVW$$



$$\frac{130}{60} = \frac{13}{6} \checkmark$$

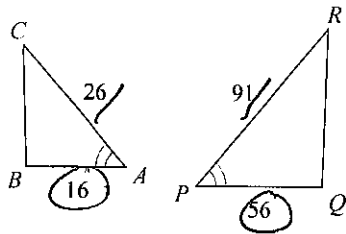
$$\frac{156}{72} = \frac{13}{6} \checkmark$$

16)



$$\triangle STU \sim \triangle SBC \text{ AA} \sim$$

17)

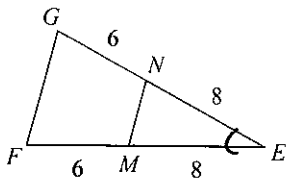


$\triangle PQR \sim \triangle ABC$  SAS  $\sim$

$$\frac{16}{56} = \frac{2}{7} \checkmark$$

$$\frac{26}{91} = \frac{2}{7} \checkmark$$

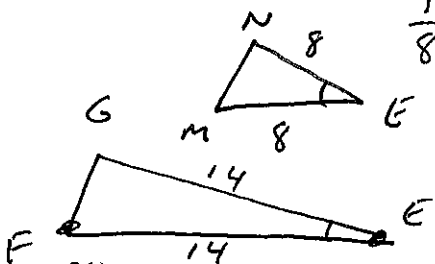
19)



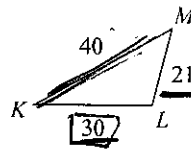
$\triangle EFG \sim \triangle EMN$  SAS  $\sim$

$$\frac{14}{8} = \frac{7}{4} \checkmark$$

$$\frac{14}{8} = \frac{7}{4} \checkmark$$



18)



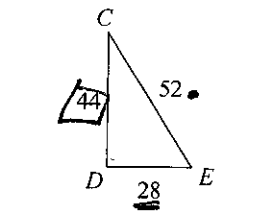
$$\frac{21}{52} = \frac{21}{52} \times$$

$$\frac{30}{78} = \frac{5}{13} \times$$

$\triangle UVW \sim$  Not Similar

$$\frac{40}{103} = \frac{40}{103} \times$$

20)



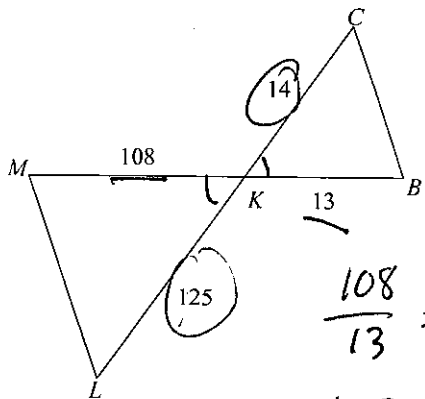
$$\frac{28}{77} = \frac{4}{11} \checkmark$$

$$\frac{44}{121} = \frac{4}{11} \checkmark$$

$\triangle FGH \sim \triangle EDC$  SSS  $\sim$

$$\frac{52}{143} = \frac{4}{11} \checkmark$$

21)

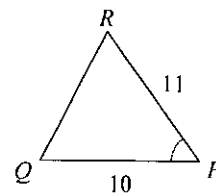
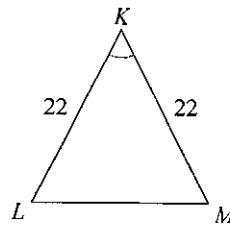


$$\frac{108}{13} = \frac{108}{13} \times$$

$$\frac{125}{14} = \frac{125}{14} \times$$

$\triangle KLM \sim$  Not Similar

22)

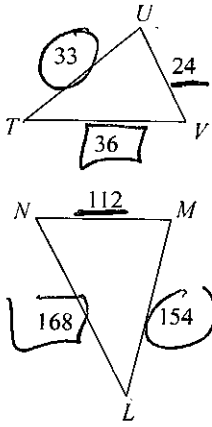


$$\frac{11}{22} = \frac{1}{2} \times$$

$$\frac{10}{22} = \frac{5}{11} \times$$

$\triangle KLM \sim$  NOT Similar

23)



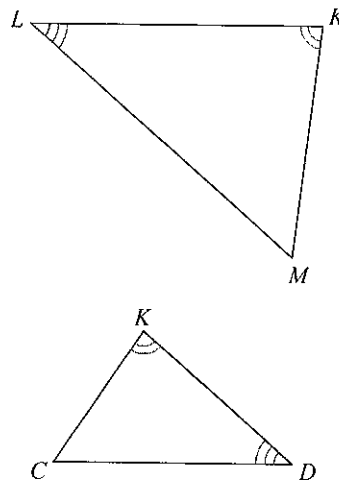
$$\frac{24}{112} = \frac{3}{14} \checkmark$$

$$\frac{33}{154} = \frac{3}{14} \checkmark$$

$$\frac{36}{168} = \frac{3}{14} \checkmark$$

$\Delta LMN \sim \Delta TUV$

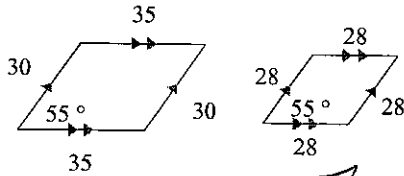
24)



$\Delta KLM \sim \Delta KDC$

State if the polygons are similar.

25)

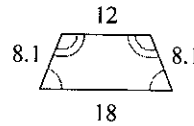


$$\frac{35}{28} = \frac{5}{4} \times$$

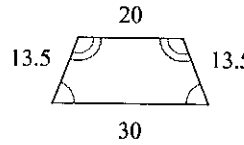
$$\frac{30}{28} = \frac{15}{14} \times$$

No

26)



$$\frac{12}{20} = \frac{3}{5} \checkmark$$



$$\frac{8.1}{13.5} = \frac{3}{5} \checkmark$$

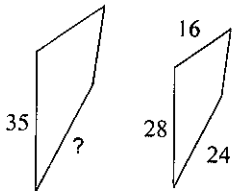
$$\frac{18}{30} = \frac{3}{5} \checkmark$$

$$\frac{8.1}{13.5} = \frac{3}{5} \checkmark$$

yes similar

The polygons in each pair are similar. Find the missing side length.

27)

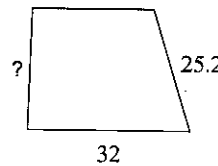
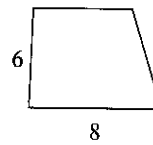


$$\frac{35}{28} \neq \frac{x}{24}$$

$$\frac{28x}{28} = \frac{840}{28}$$

$$x = 30$$

28)

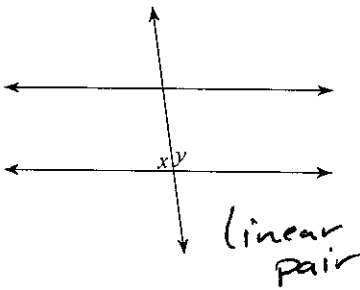


$$\frac{6}{x} \neq \frac{8}{32}$$

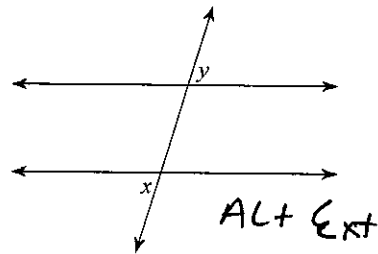
$$\frac{8x}{8} = \frac{192}{8} \quad x = 24$$

Identify each pair of angles as corresponding, alternate interior, alternate exterior, same-side interior, vertical, or linear pair.

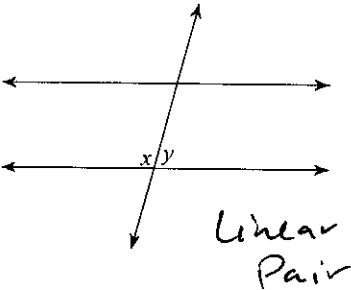
29)



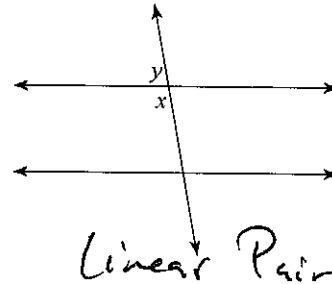
30)



31)

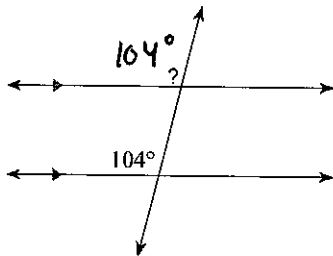


32)

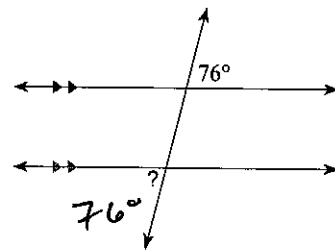


Find the measure of each angle indicated.

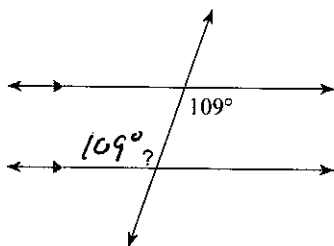
33)



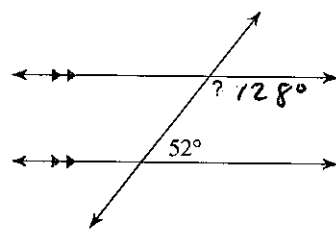
34)



35)

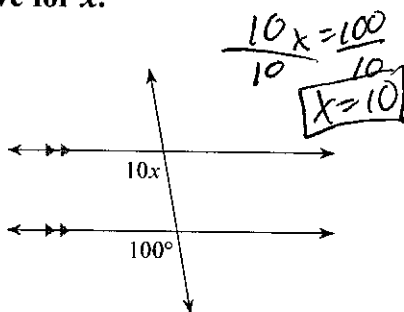


36)

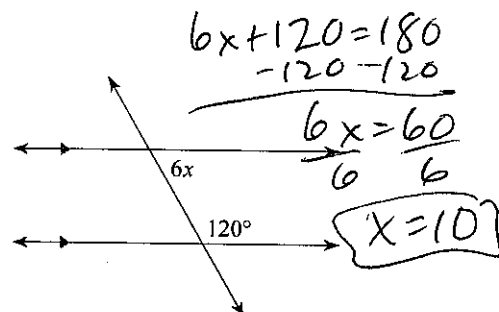


Solve for x.

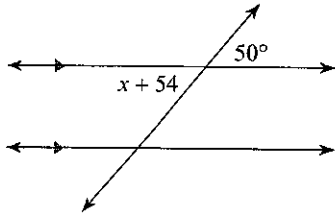
37)



38)

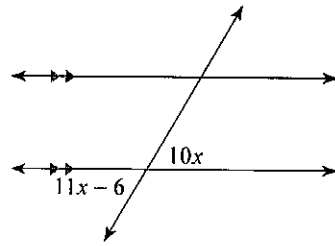


39)



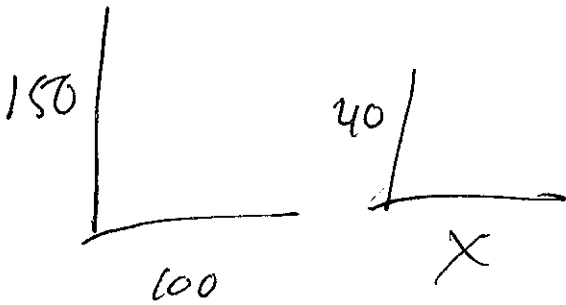
$$\begin{array}{r} 50 = x + 54 \\ -54 \quad -54 \\ \hline -4 = x \end{array}$$

40)



$$\begin{array}{r} 11x - 6 = 10x \\ -11x \quad -11x \\ \hline -6 = -x \\ \frac{-6}{-1} = \frac{-x}{-1} \end{array} \quad x = 6$$

41) A 150 ft building casts a shadow 100 feet long. What is length of the shadow of a 40 ft tree on the same day?

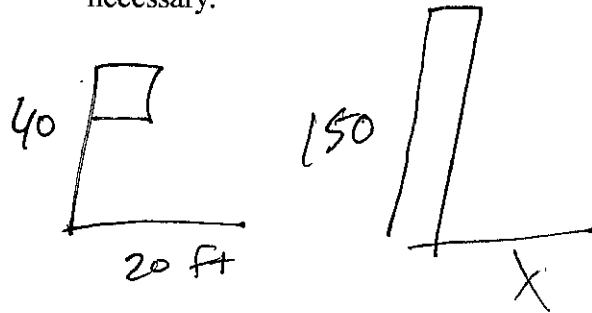


$$\frac{150}{40} \times \frac{100}{x}$$

$$\frac{150x}{150} = \frac{4000}{150}$$

$$x = 26.6 \text{ ft}$$

42) A 40 ft flagpole casts a 20 ft shadow. Find the shadow cast by a nearby building 150 feet tall. Round to the nearest tenth if necessary.

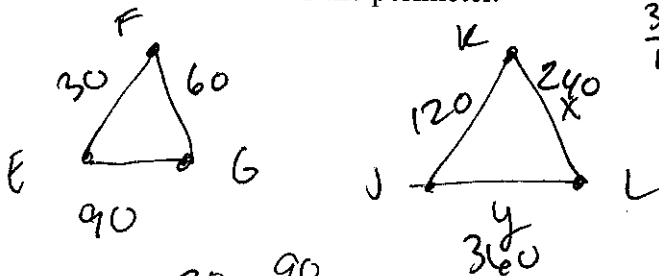


$$\frac{40}{150} \times \frac{20}{x}$$

$$\frac{40x}{40} = \frac{3000}{40}$$

$$x = 75 \text{ ft}$$

43) Triangles EFG and Triangle JKL are similar. The sides of triangle EFG are 30, 60, and 90. The shortest side of triangle JKL is 120. Find the length of the longest side. BONUS: Find the perimeter.



$$\frac{30}{120} = \frac{60}{x}$$

$$\frac{30x}{30} = \frac{7200}{30}$$

$$x = 240$$

$$\text{Longest} = 360$$

$$\text{Perimeter} = 720$$

$$\frac{30}{120} \times \frac{90}{y}$$

$$30y = 10800 \quad y = 360$$