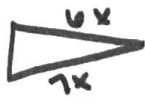


1. The ratio of the sides of a triangle is 2:6:7.  
If the perimeter of the triangle is 195 meters,  
what is the length of the longest side?



$$2x + 6x + 7x = 195$$

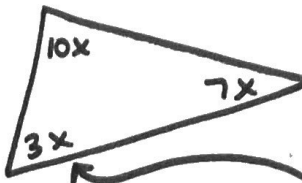
$$15x = 195$$

$$x = 13$$

plug in

91m

2. The ratio of the angles in a triangle is 3:10:7.  
What is the measure of the smallest angle?



$$10x + 7x + 3x = 180$$

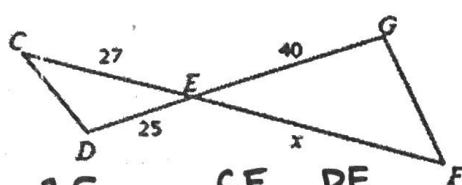
$$20x = 180$$

$$x = 9$$

plug in

27°

6. If  $\triangle CDE \sim \triangle FGE$ , find the value of  $x$ .



$$\frac{27}{x} = \frac{25}{40}$$

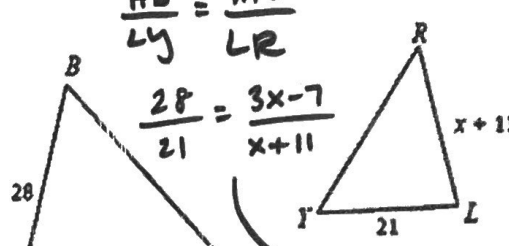
$$\frac{CE}{EF} = \frac{DE}{EG}$$

$$25x = 1080$$

$$x = 43.2$$

x = 43.2

7. If  $\triangle HBN \sim \triangle LYR$ , find the value of  $x$ .



$$\frac{HB}{LY} = \frac{HN}{LR}$$

$$\frac{28}{21} = \frac{3x-7}{x+11}$$

$$28x + 308 = 63x - 147$$

$$+147 \quad +147$$

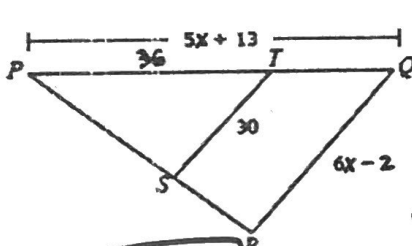
$$28x + 455 = 63x$$

$$-28x \quad -28x$$

$$455 = 35x$$

x = 13

8. If  $\triangle PTS \sim \triangle PQR$ , find the value of  $x$ .



$$\frac{36}{5x+13} = \frac{30}{6x-2}$$

$$150x + 390 = 216x - 72$$

$$+72 \quad +72$$

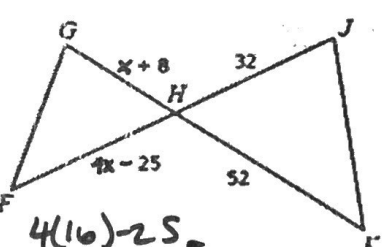
$$150x + 462 = 216x$$

$$-150x \quad -150x$$

$$462 = 66x$$

x = 7

9. If  $\triangle FGH \sim \triangle KJH$ , find  $FH$ .



$$\frac{x+8}{32} = \frac{4x-25}{52}$$

$$128x - 800 = 52x + 416$$

$$+800 \quad +800$$

$$128x = 52x + 1216$$

$$-52x \quad -52x$$

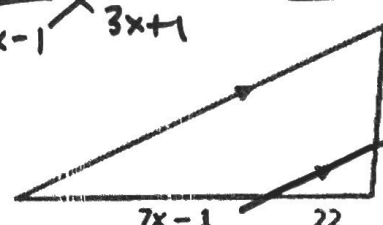
$$76x = 1216$$

$$\underline{76}$$

x = 16

39

21. Solve for  $x$ .



$$\frac{22}{7x-1} = \frac{10}{3x+1}$$

$$70x - 10 = 66x + 22$$

$$+10 \quad +10$$

$$70x = 66x + 32$$

$$3x + 1 \quad 4x = 32$$

x = 8

$$\begin{array}{r} 70x + 196 = 98x \\ -70x \end{array}$$

10. If  $\triangle PML \sim \triangle TRO$ , find  $QR$ .

$$\frac{35}{14} = \frac{7x-9}{2x+2}$$

$$70x + 70 = 98x - 126$$

$$\begin{array}{r} 70x + 70 = 98x - 126 \\ +126 \qquad +126 \\ \hline \end{array}$$

25. Solve for  $x$ .

$$\frac{x-4}{4} = \frac{x+3}{8}$$

$$8x - 32 = 4x + 12$$

$$\begin{array}{r} 8x - 32 = 4x + 12 \\ +32 \qquad +32 \\ \hline 8x = 4x + 44 \end{array}$$

24. Solve for  $x$ .

$$\frac{9}{24} = \frac{12}{3x+2}$$

$$288 = 27x + 18$$

$$\begin{array}{r} 288 = 27x + 18 \\ -18 \qquad -18 \\ \hline 270 = 27x \\ \hline 27 \\ \hline x = 10 \end{array}$$

For Questions 11-16, determine how (if possible) the triangles can be proved similar.

11.

A. AA~  
B. SSS~  
C. SAS~  
D. Not Similar

**A**

12.

A. AA~  
B. SSS~  
C. SAS~  
D. Not Similar

$$\frac{20.8}{28.8} = \frac{23.4}{32.4}$$

$$\begin{array}{r} 20.8 \qquad 23.4 \\ 28.8 \qquad 32.4 \\ \hline .722 \qquad .722 \checkmark \end{array}$$

**C**

19. Solve for  $x$ .

$$\frac{30}{16} = \frac{x}{20}$$

$$\frac{600}{16} = \frac{16x}{16}$$

$$37.5$$

**x = 37.5**

20. Solve for  $x$ .

$$\frac{9}{4} = \frac{13.5}{x+4}$$

$$54 = 9x + 36$$

$$\begin{array}{r} 54 = 9x + 36 \\ -36 \qquad -36 \\ \hline 18 = 9x \\ \hline x = 2 \end{array}$$

**x = 2**

13.

$$\frac{20}{36} = \frac{24}{42}$$

**D**

14.

**D**