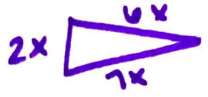
1. The ratio of the sides of a triangle is 2:6:7. If the perimeter of the triangle is 195 meters, what is the length of the longest side?



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

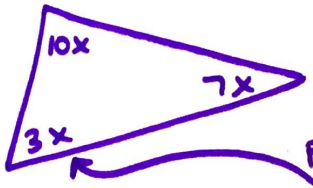
$15x=195$

$x=13$

plug in

$\boxed{91\,m}$

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



plug in

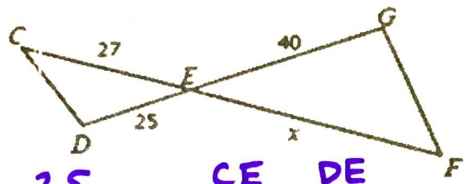
$10x+7x+3x=180$

$20x=180$

$x=9$

$\boxed{27°}$

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



$\frac{27}{x}=\frac{25}{40}$ $\quad \frac{CE}{EF}=\frac{DE}{EG}$

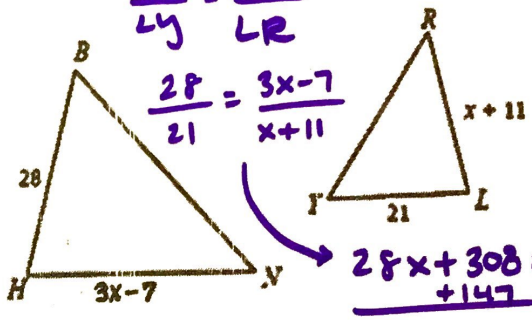
$25x=1080$

$x=43.2$

$\boxed{x=43.2}$

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

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



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

$28x+308=63x-147$

$+147 \quad +147$

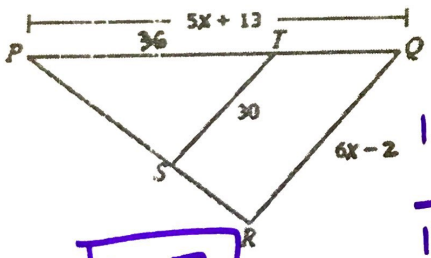
$28x+455=63x$

$-28x \quad -28x$

$455=35x$

$\boxed{x=13}$

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



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

$150x+390=216x-72$

$+72 \quad +72$

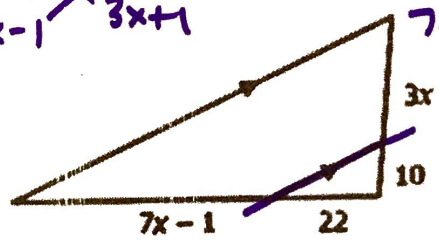
$150x+462=216x$

$-150x \quad -150x$

$462=66x$

$\boxed{x=7}$

21. Solve for x.



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

$70x-10=66x+22$

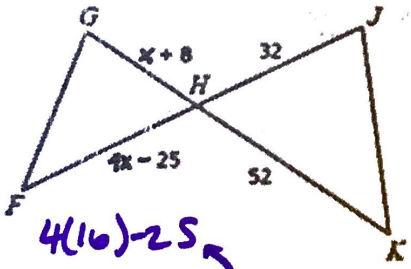
$+10 \quad +10$

$70x=66x+32$

$4x=32$

$\boxed{x=8}$

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



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

$128x-800=52x+416$

$+800 \quad +800$

$128x=52x+1216$

$-52x \quad -52x$

$\frac{76x}{76}=\frac{1216}{76}$

$4(16)-25$

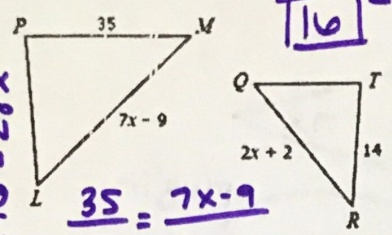
$x=16$

$\boxed{39}$

$\boxed{x=7}$

$70x + 196 = 98x$
$-70x \quad -70x$
$196 = 28x$

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



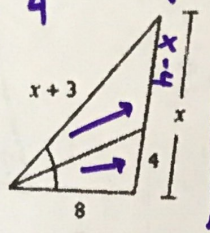
$\boxed{16}$

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

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

25. Solve for x.

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

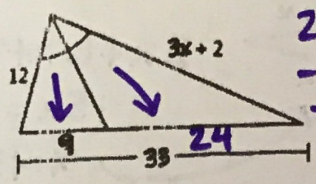


$\boxed{x=11}$

$8x - 32 = 4x + 12$
$+32 \quad +32$
$8x = 4x + 44$
$-4x \quad -4x$

24. Solve for x.

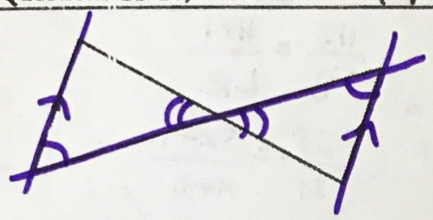
$\frac{9}{24} \approx \frac{12}{3x+2}$



$288 = 27x + 18$
$-18 \quad -18$
$\frac{270}{27} = \frac{27x}{27}$
$\boxed{x=10}$

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

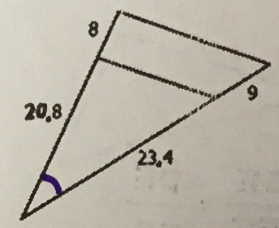
11.



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

$\boxed{A}$

12.

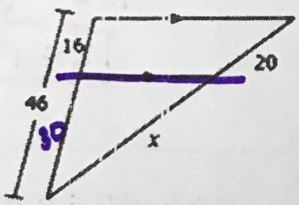


$\frac{20.8}{28.8} = \frac{23.4}{32.4}$
$.722 \quad .722$ ✓

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

$\boxed{C}$

19. Solve for x.



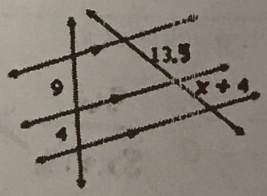
$\frac{30}{16} \approx \frac{x}{20}$

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

37.5

$\boxed{x = 37.5}$

20. Solve for x.

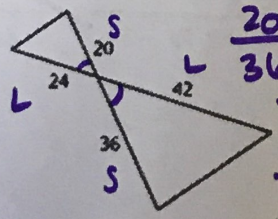


$\frac{9}{4} \approx \frac{13.5}{x+4}$

$54 = 9x + 36$
$-36 \quad -36$
$18 = 9x$
$x = 2$

$\boxed{x = 2}$

13.

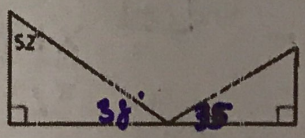


$\frac{20}{36} = \frac{24}{42}$
$.555 \quad .57$

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

$\boxed{D}$

14.



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

$\boxed{D}$