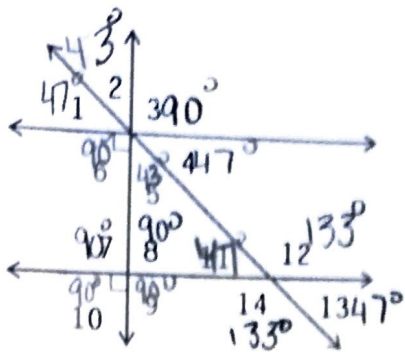


Refer to the diagram to answer questions 1-7.



1. $\angle 1$ and $\angle 2$ are Complementary angles.

2. $\angle 11$ and $\angle 12$ are linear pair angles.

3. $\angle 12$ and $\angle 14$ are vertical angles.

4. $\angle 11$ and $\angle 4$ are Alt int angles.

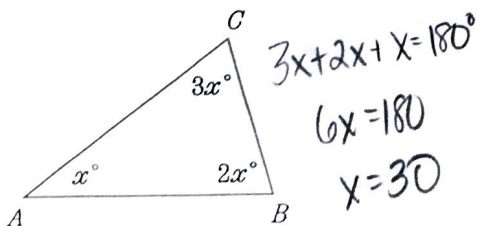
5. $\angle 10$ and $\angle 3$ are Alt ext angles.

6. $\angle 4$ and $\angle 12$ are consecutive same-side interior angles.

7. $\angle 4$ and $\angle 13$ are corresponding angles.

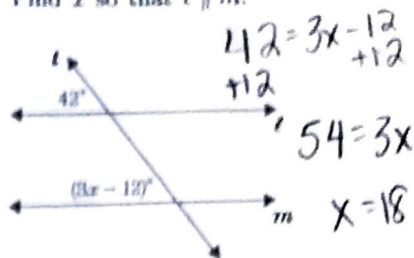
8. Given that $m\angle 1 = 47^\circ$, find the measure of the other angles.

9. Find the measure of $\angle ABC$.

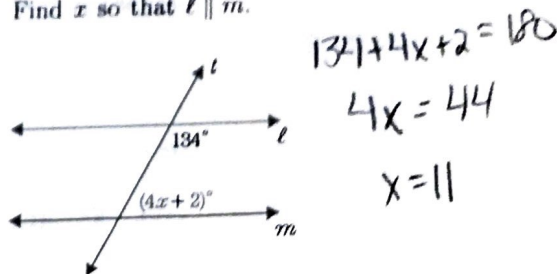


$m\angle ABC = 2(30) = 60^\circ$

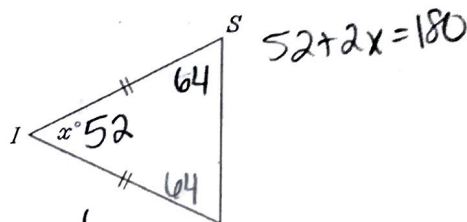
10. Find x so that $l \parallel m$.



11. Find x so that $l \parallel m$.



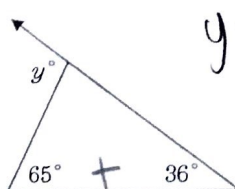
12. In the diagram, $\triangle ISO$ is isosceles. If $x = 52$ and $IO = 6$, find the values for the following:



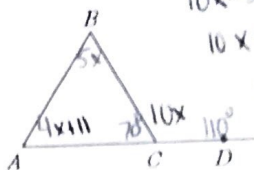
- a) $m\angle S = 64^\circ$
- b) $IS = 6$
- c) $m\angle SOI = 64^\circ$

13. In equilateral $\triangle ABC$, $AB = \frac{1}{2}x + 5$, and $BC = 2x - 13$. Solve for x and then find the length of each side of the triangle. Handwritten work: $\frac{1}{2}x + 5 = 2x - 13$, $18 = 1.5x$, $x = 12$, $side = 11$.

14. Find the value of y in the diagram.



15. In the diagram, $m\angle A = 4x + 11$, $m\angle B = 5x$ and $m\angle BCD = 10x$. What is the measure of $\angle BCA$?



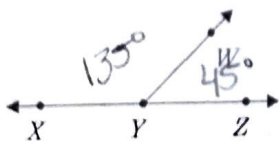
$$10x = 5x + 4x + 11$$

$$10x = 9x + 11$$

$$x = 11$$

$$= 70^\circ$$

16. In the figure $\angle XYW$ and $\angle WYZ$ form a linear pair, if $m\angle XYW = 135$, then find $m\angle WYZ$.



$$180 - 135$$

$$m\angle WYZ = 45^\circ$$

17. If two complementary angles have degree measures of $m\angle X = 8x - 12$ and $m\angle Y = 2x + 2$, what is the value of $m\angle X$? $8x - 12 + 2x + 2 = 90$ $10x = 90$ $m\angle X = 68^\circ$

$$10x - 10 = 90$$

$$x = 10$$

18. Given that $\angle A$ and $\angle B$ are supplementary, if $m\angle A = (2y)^\circ$ and $m\angle B = (y - 15)^\circ$, find $m\angle B$.

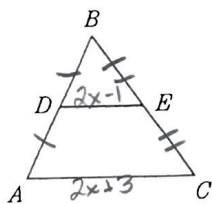
$$2y + y - 15 = 180$$

$$3y = 195$$

$$y = 65$$

$$65 - 15 = 50$$

19. In this triangle, D is the midpoint of \overline{AB} and E is the midpoint of \overline{BC} . If $DE = 2x - 1$, and $AC = 2x + 3$ SOLVE for x .



$$2(2x - 1) = 2x + 3$$

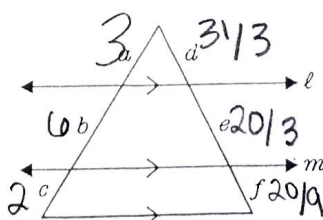
$$4x - 2 = 2x + 3$$

$$-2x + 2 = 2x + 2$$

$$2x = 5$$

$$x = 5/2 \text{ or } 2.5$$

20. In the diagram, lines ℓ and m are parallel to the base of the triangle, $a = 3$, $b = 6$, $c = 2$, and $d = 3\frac{1}{3}$. What are the exact values of e and f ?



$$\frac{3}{3\frac{1}{3}} = \frac{6}{e}$$

$$3e = 20$$

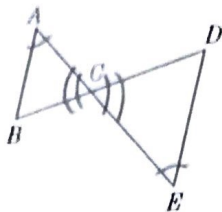
$$e = 20/3$$

$$\frac{3}{3\frac{1}{3}} = \frac{2}{f}$$

$$\frac{20/3}{3} = \frac{3f}{3}$$

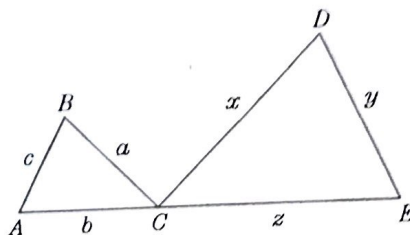
$$f = 20/9$$

21. In the diagram, $\angle A \cong \angle E$. $\triangle ABC \sim$ _____ by _____.

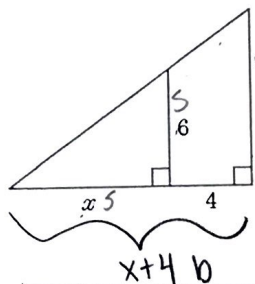


$\sim \triangle EDC$
By AA

22. In the diagram, it is known that $\frac{b}{z} = \frac{c}{y} = \frac{a}{x}$. $\triangle ABC \sim \triangle EDC$ by SSS.



23. Find the value of x if the two triangles are similar.



$$\frac{6}{9} = \frac{x}{x+4}$$

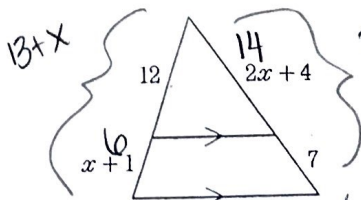
$$6x + 24 = 9x$$

$$-6x$$

$$24 = 3x$$

$$x = 8$$

24. Find the value of x if the two triangles are similar.



$$2x + 11 \quad \frac{12}{x+1} = \frac{2x+4}{7}$$

$$84 = 2x^2 + 6x + 4$$

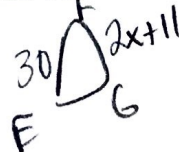
$$0 = 2x^2 + 6x - 80$$

$$(x+1)(2x+4) \quad 0 = 2(x+8)(x-5)$$

$$2x^2 + 4x + 2x + 4 \quad 0 = 2(x+8)(x-5)$$

$$x = -8 \text{ or } 5$$

25. In the diagram, $\triangle ABC \sim \triangle EFG$, $AB = 12$, $EF = 30$, $BC = x$, and $FG = 2x + 11$. What is the value of x ?



$$x = 22$$

$$\frac{12}{30} = \frac{x}{2x+11}$$

$$24x + 132 = 30x$$

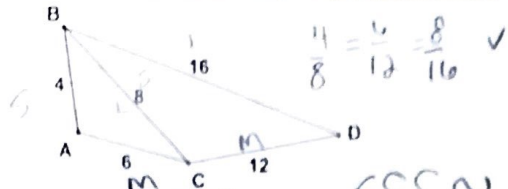
$$-24x$$

$$132 = 6x$$

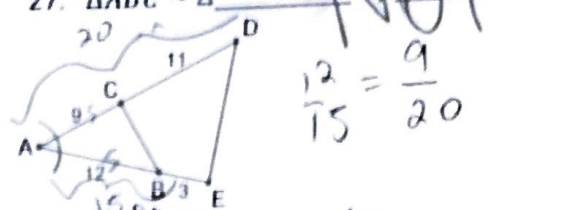
$$45$$

The triangles in 26-30 can be proved similar, (1) Complete the similarity statement and (2) Tell which theorem or postulate you would use. If they cannot be proved similar then write "None"

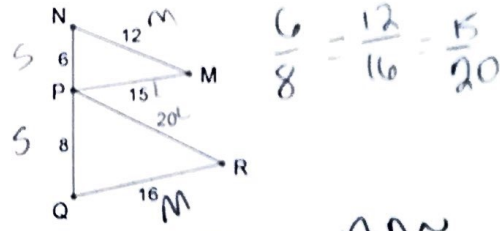
26. $\triangle ABC \sim \triangle CBD$ by SSS



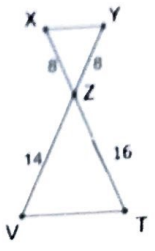
27. $\triangle ABC \sim \triangle$ by NOT



28. $\triangle NMP \sim \triangle QRP$ by SSS

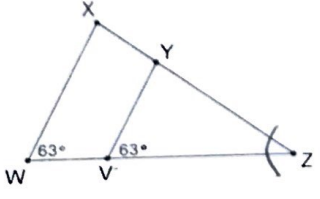


29. $\triangle XYZ \sim \triangle$ by _____



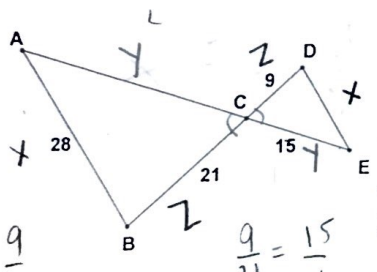
NO
 $\frac{8}{14} \neq \frac{8}{16}$
 $\frac{8}{8} \neq \frac{14}{16}$

30. $\triangle YVZ \sim \triangle XWZ$ by AA



31. $\triangle BAC \sim \triangle DEC$

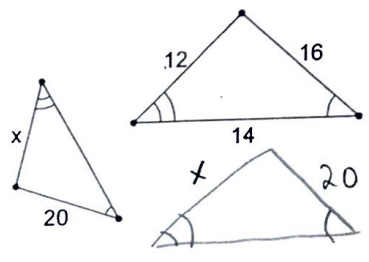
- a. Find AC. 35
- b. Find DE. 12



$\frac{x}{21} = \frac{9}{21}$
 $x = 12$

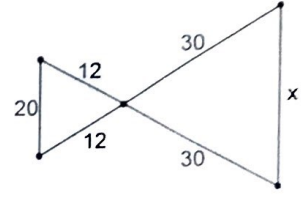
$\frac{9}{21} = \frac{15}{y}$
 $\frac{315}{9} = 35$

32. $x = \underline{15}$

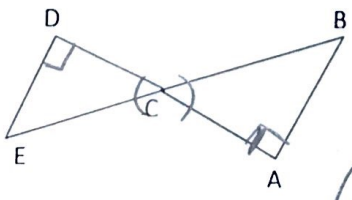


$\frac{x}{12} = \frac{20}{14}$
 $16x = 240$
 $x = 15$

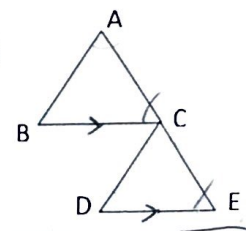
33. $x = \underline{50}$
 $\frac{12}{30} = \frac{20}{x}$
 $12x = 600$



34. Given: $\overline{DA} \perp \overline{DE}$; $\overline{DA} \perp \overline{BA}$
 Prove: $\triangle EDC \sim \triangle BAC$



35. Given: $\overline{BC} \parallel \overline{DE}$; $\frac{AC}{CE} = \frac{BC}{DE}$
 Prove: $\angle B \cong \angle D$



Statement	Reason
1. $\overline{DA} \perp \overline{DE}$; $\overline{DA} \perp \overline{BA}$	1. GIVEN
2. $\angle D$ and $\angle A$ are right	2. Def of \perp lines
3. $\angle D \cong \angle A$	3. Thm of Right \angle 's
4. $\angle DCE \cong \angle ACB$	4. Vert \angle 's \cong
5. $\triangle EDC \sim \triangle BAC$	AA

Statement	Reason
1.	1. GIVEN
2. $\angle C \cong \angle E$	2. Corr
3. $\triangle ABC \sim \triangle CDE$	3. SAS
4. $\angle B \cong \angle D$	Def of $\sim \Delta$'s