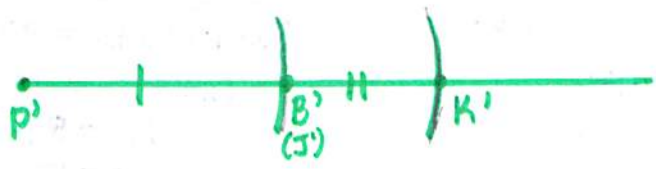
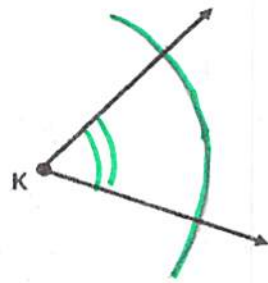
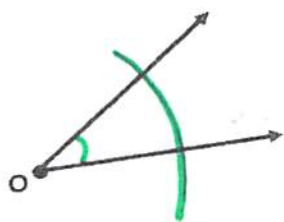
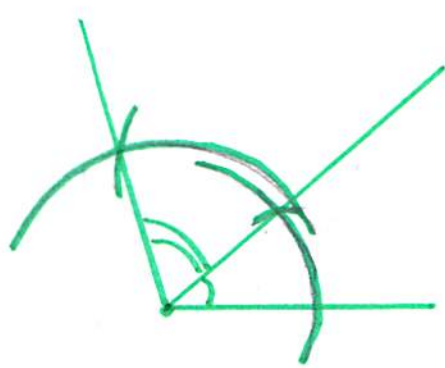


Directions: Complete each construction using a compass and a straightedge.

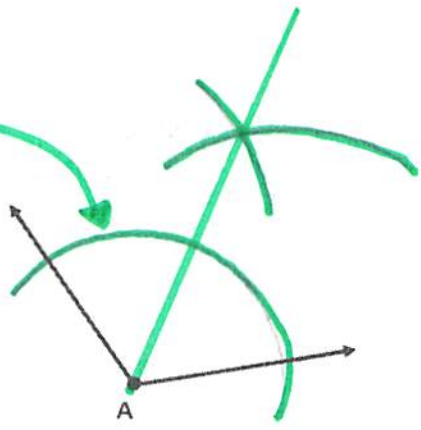
1) Use Segment Addition Postulate to combine the segments.



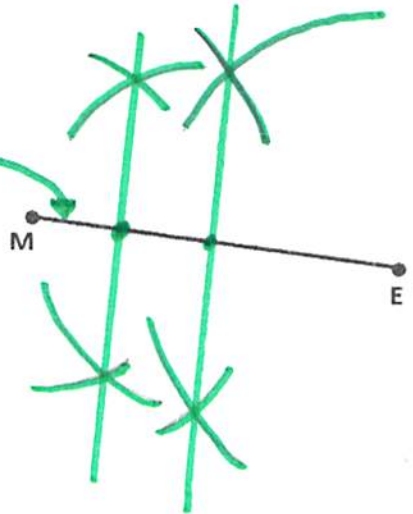
2) Use Angle Addition Postulate to combine the angles.



3) Complete the construction: $\frac{1}{2} * m\angle A$

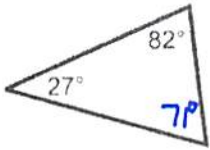


4) Complete the construction: $\frac{1}{4} ME$



Directions: Classify the triangle by its angles and sides.

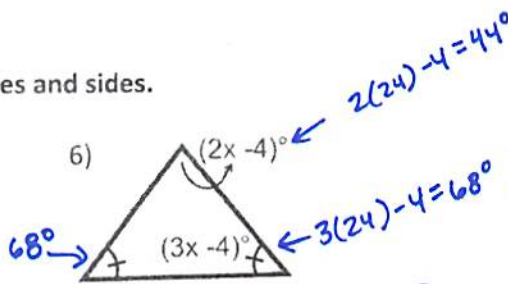
5)



$$180 - 27 - 82 = 71^\circ$$

acute scalene

6)



$$3x - 4 + 3x - 4 + 2x - 4 = 180$$

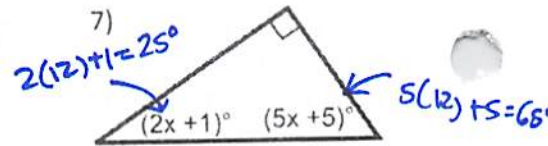
$$8x - 12 = 180$$

$$8x = 192$$

$$x = 24$$

acute isosceles

7)



$$2x + 1 + 5x + 5 = 90$$

$$7x + 6 = 90$$

$$7x = 84$$

$$x = 12$$

right scalene

Directions: Write the triangle angles and sides in order from least to greatest.

8) $m\angle A = (x - 15)^\circ$ 75°

$m\angle B = 90^\circ$

$m\angle C = (2x - 165)^\circ$ 15°

$$x - 15 + 90 + 2x - 165 = 180$$

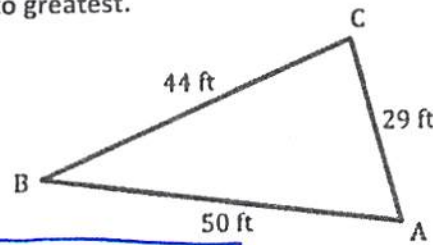
$$3x - 90 = 180$$

$$3x = 270$$

$$x = 90$$

$\angle C, \angle A, \angle B$
 $\overline{AB}, \overline{BC}, \overline{AC}$

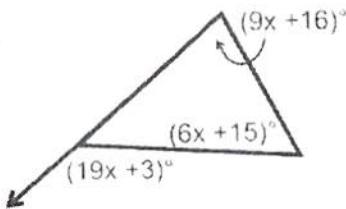
9)



$\overline{AC}, \overline{BC}, \overline{AB}$
 $\angle B, \angle A, \angle C$

Directions: Solve for x.

10)



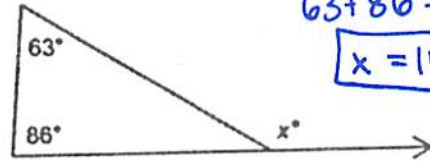
$$9x + 16 + 6x + 15 = 19x + 3$$

$$15x + 31 = 19x + 3$$

$$28 = 4x$$

$$7 = x$$

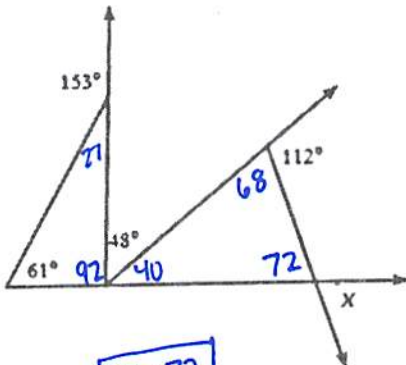
11)



$$63 + 86 = x$$

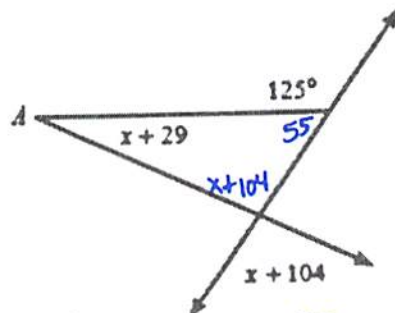
$$x = 149$$

12)



$$x = 72$$

13)



$$x + 29 + 125 + x + 104 = 180$$

$$2x + 188 = 180$$

$$2x = -8$$

$$x = -4$$

Directions: Determine if the following sides can make a triangle.

14) 5, 6, 7

$$5 + 6 > 7$$

$$11 > 7 \checkmark$$

yes

15) 1, 1, 2

$$1 + 1 > 2$$

$$2 \not> 2$$

no

16) 21, 21, 21

$$21 + 21 > 21$$

$$42 > 21 \checkmark$$

yes

Directions: Determine the range of values for the third side of a triangle if the following lengths are two sides.

17) 7, 12

$$5 < x < 19$$

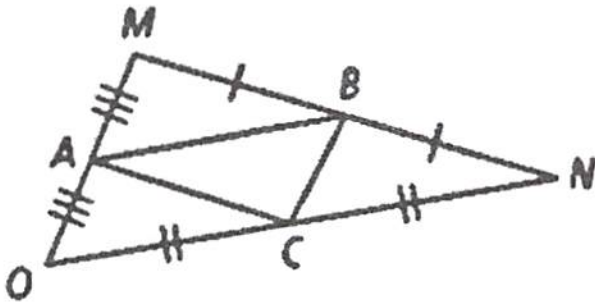
18) 12, 14

$$2 < x < 26$$

19) 5, 16

$$11 < x < 21$$

Directions: Use the figure to solve each problem.



20) $\overline{MN} \parallel ?$ \overline{AC}

21) What midsegment is parallel to \overline{MO} ?
 \overline{BC}

22) If $AB = 17.5$, what is NO ?

$$2(17.5) = \boxed{35}$$

23) If $MB = 2x - 5$ and $BN = 19$, what is the value of x ?

$$2x - 5 = 19$$

$$2x = 24$$

$$x = \boxed{12}$$

24) If $AB = 3x - 1$ and $ON = 34$, what is the value of x ?

$$2(3x - 1) = 34$$

$$6x - 2 = 34$$

$$6x = 36$$

$$x = \boxed{6}$$

25) If $m\angle AOC = 37^\circ$, what is $m\angle BCN$?

$$\boxed{37^\circ}$$

26) If $m\angle BCN = 48^\circ$, what is $m\angle CBA$?

$$\boxed{48^\circ}$$

27) If $MO = 32$, $MN = 45$, and $ON = 81$, what is the perimeter of $\triangle ABC$?

$$40.5 + 22.5 + 16 = \boxed{79}$$

