

1. $\triangle ABC \cong \triangle A'B'C'$, $m\angle C = (3x - 40)^\circ$ and $m\angle C' = (2x - 10)^\circ$. Find $m\angle C$.

$$3x - 40 = 2x - 10 \quad m\angle C = 3(30) - 40$$

$$x - 40 = -10$$

$$x = 30$$

$$m\angle C = 90 - 40$$

$$m\angle C = 50^\circ$$

2. In $\triangle ABC$, $m\angle A = 48^\circ$ and $m\angle C = 24^\circ$. What type of triangle is $\triangle ABC$?

$$m\angle A + m\angle B + m\angle C = 180^\circ$$

$$48 + m\angle B + 24 = 180^\circ$$

$$72 + m\angle B = 180^\circ$$

$$m\angle B = 108^\circ$$

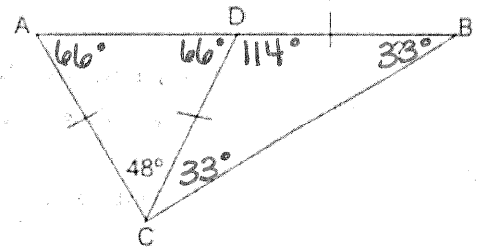
obtuse

SCALED
 OBTUSE
 TRIANGLE!

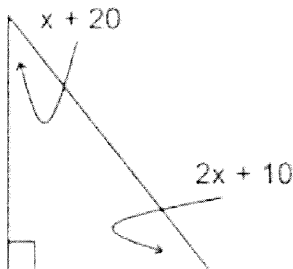
3. In the diagram, $\overline{AC} \cong \overline{DC} \cong \overline{BD}$. If the $m\angle ACD = 48^\circ$, find the $m\angle B$.

$$180 - 48 = \frac{132^\circ}{2} = 66^\circ$$

$$m\angle B = 33^\circ$$



4. Find the value of x .



$$x + 20 + 2x + 10 = 90$$

$$3x + 30 = 90$$

$$3x = 60$$

$$x = 20$$

$$\text{OR } 90 + x + 20 + 2x + 10 = 180$$

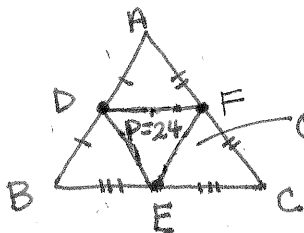
$$3x + 120 = 180$$

$$3x = 60$$

$$x = 20$$

~~SKIP~~

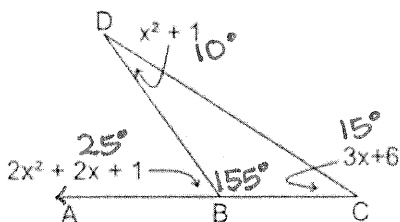
5. The midpoints of the sides of $\triangle ABC$ are labeled D, E and F . If the perimeter of $\triangle DEF$ is 24, find the perimeter of $\triangle ABC$.



$$\text{Perimeter of } \triangle ABC = 48$$

constructed by midsegments
 so $P_{\text{mid } \Delta} = \frac{1}{2} P(\text{larger } \Delta)$

6. Find the $m\angle DBC$.



$$x^2 + 1 + 3x + 6 = 2x^2 + 2x + 1$$

$$x^2 + 3x + 7 = 2x^2 + 2x + 1$$

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

$$0 = (x - 3)(x + 2)$$

$$x = 3, x = -2$$

DOESN'T MAKE SENSE

$$m\angle DBC = 155^\circ$$

7. The vertex angle of an isosceles triangle measures eight times the measure of a base angle. Find the measure of a base angle.



$$8x + x + x = 180^\circ$$

$$10x = 180$$

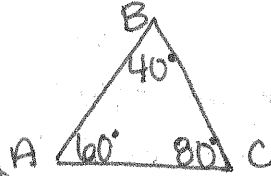
$$x = 18$$

meas. of a base angle 18°

8. In $\triangle ABC$, $m\angle A = 60^\circ$ and $m\angle B = 40^\circ$. Which side of $\triangle ABC$ is the longest?

$$m\angle C = 180 - 60 - 40$$

$$m\angle C = 80^\circ$$



\overline{AB} is the longest!

9. In $\triangle ABC$, $\angle A$ is obtuse. Which statement is true about the sum of the measures of $\angle B$ and $\angle C$?

~~A.~~ $m\angle B + m\angle C = 90 \rightarrow$ This would mean $m\angle A = 90^\circ$

~~B.~~ $m\angle B + m\angle C > 90 \rightarrow m\angle A < 90^\circ$

~~C.~~ $m\angle B + m\angle C < 90$

~~D.~~ $m\angle B + m\angle C = 180$ All 3 angles sum to 180° !

10. In the figure below, $\overline{BA} \cong \overline{BC}$ and $m\angle X = 117^\circ$. Find $m\angle Y$.

