


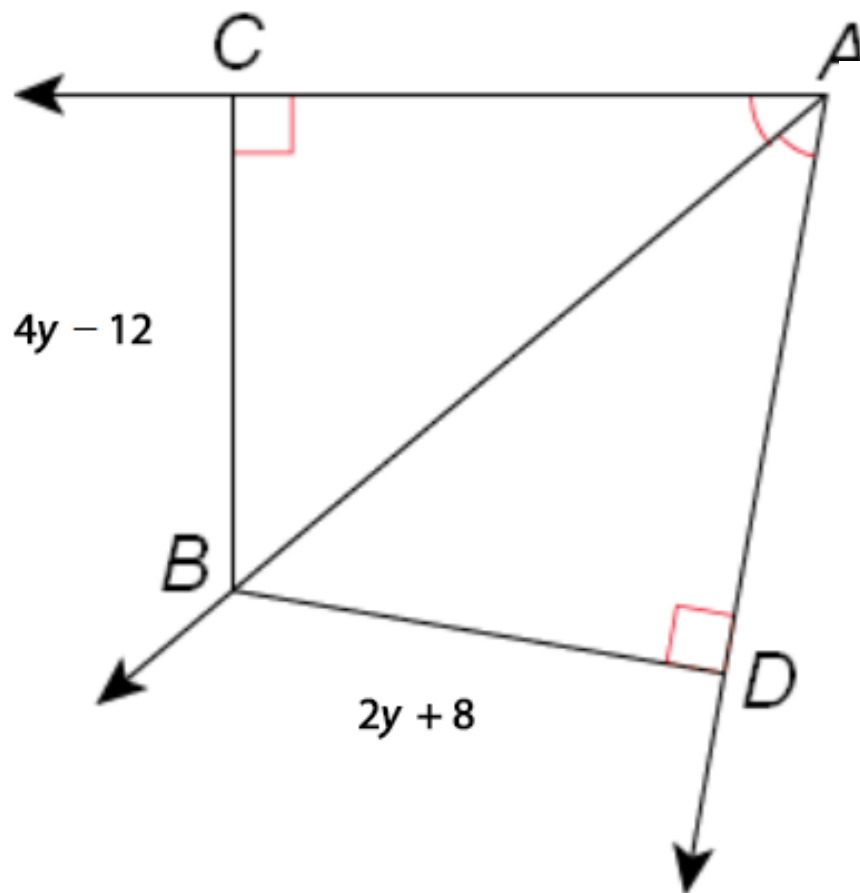
Personal Math Trainer 

**15.5 Angle Bisectors of Triangles -Class & Homework**



**1.** Find the measure.

$BC$



The length of  $\overline{BC}$  is 28.

→  
 $AB$  is the bisector of  $\angle CAD$ .  
 By the Angle Bisector Theorem

,  $BC = BD$ , so:

$$4y - 12 = 2y + 8$$

$$2y - 12 = 8$$

$$2y = 20$$

$$y = 10$$

Substitute the value of  $y$  to find  $BC$ .

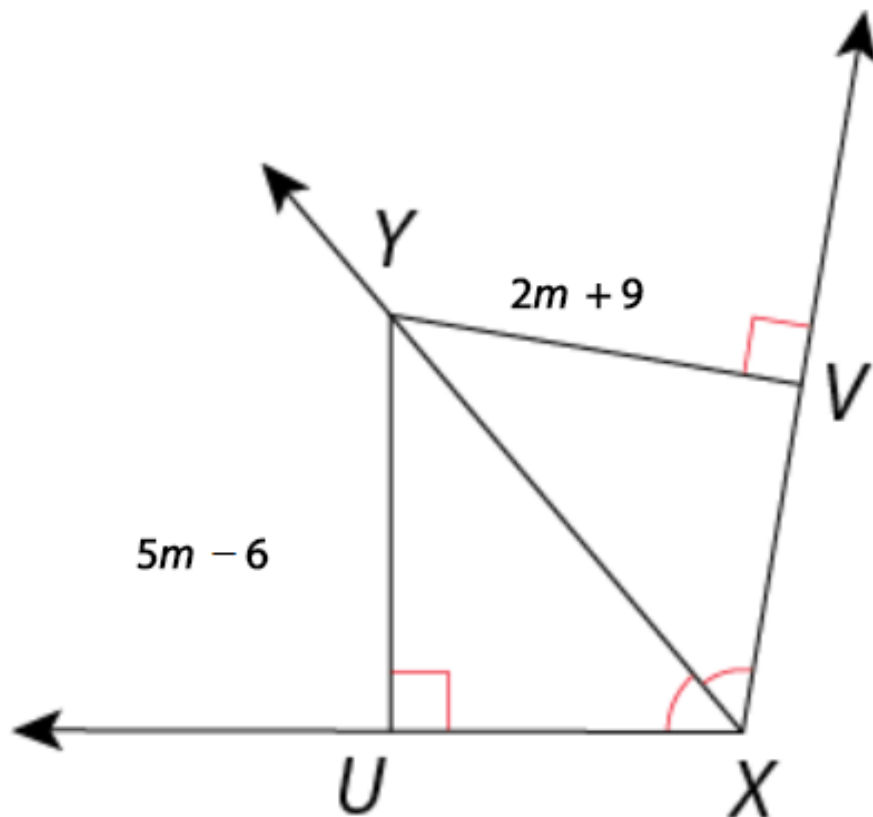
$$BC = 4y - 12$$

$$BC = 4(10) - 12$$

$$BC = 28$$

2. Find the measure.

$VY$



→  
 $XY$  is the bisector of  $\angle VXU$ .

By the Angle Bisector Theorem,

$VY = YU$ , so:

$$2m + 9 = 5m - 6$$

$$3m = 15$$

$$m = 5$$

Substitute the value of  $m$  to find  $VY$ .

$$VY = 2m - 9$$

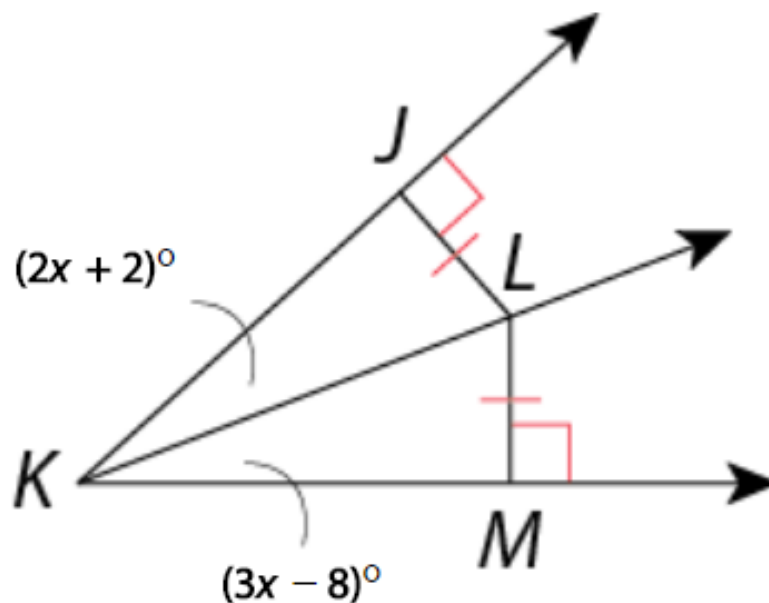
$$VY = 2(5) - 9$$

$$VY = 19$$

The measure of  $VY$  is **19**.

3. Find the measure.

$m\angle JKL$



Angle Bisector Theorem.

$$m\angle JKL = m\angle MKL.$$

$$2x + 2 = 3x - 8$$

$$2 = x - 8$$

$$x = 10$$

Substitute  $x$  to solve for  $m\angle JKL$ .

$$m\angle JKL = 2(x) + 2$$

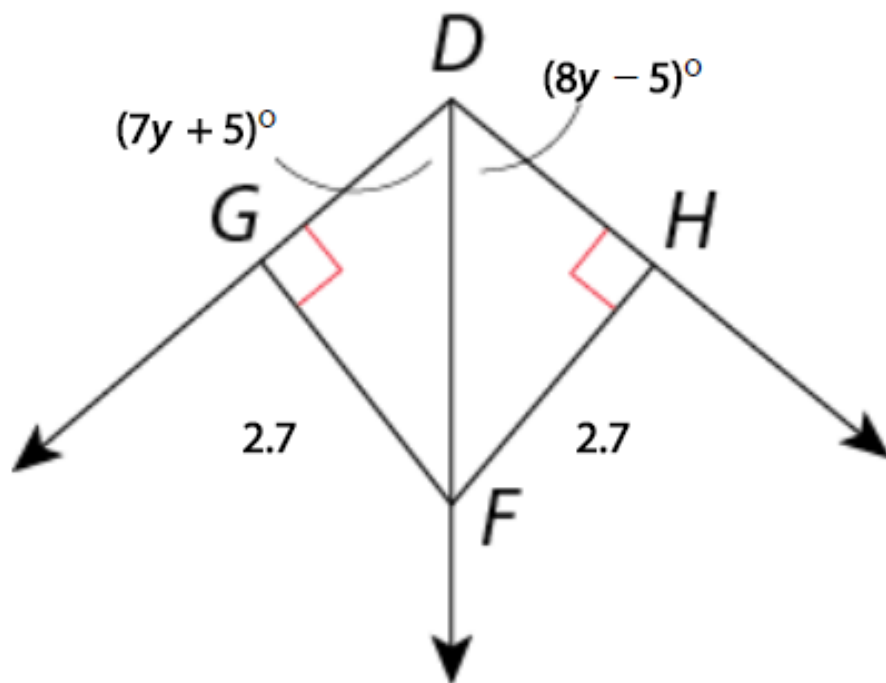
$$m\angle JKL = 2(10) + 2$$

$$m\angle JKL = 22^\circ$$

The measure of  $\angle JKL$  is **22**  $^\circ$ .

4. Find the measure.

$m\angle GDF$



Angle Bisector Theorem.

$$m\angle GDF = m\angle HDF.$$

$$7y + 5 = 8y - 5$$

$$5 = y - 5$$

$$y = 10$$

Substitute  $y$  to solve for  $m\angle GDF$ .

$$m\angle GDF = 7(y) + 5$$

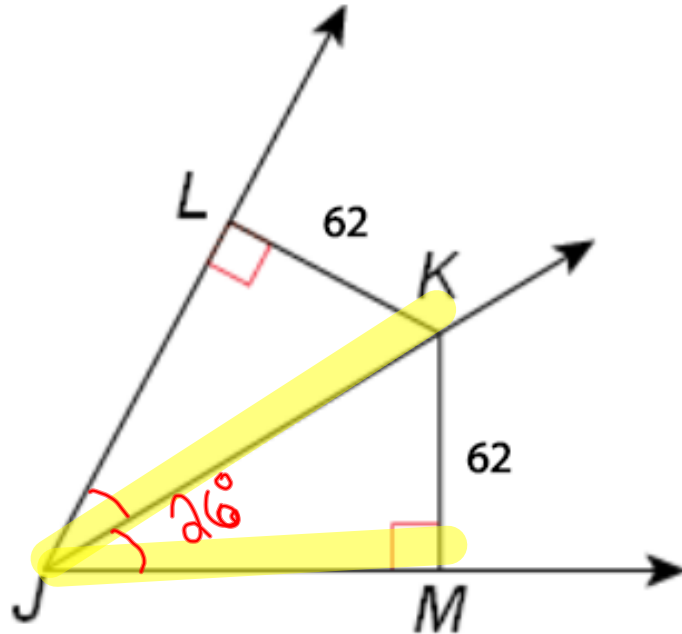
$$m\angle GDF = 7(10) + 5$$

$$m\angle GDF = 75^\circ$$

The measure of  $\angle GDF$  is **75**  $^\circ$ .

**5.** Find the measure.

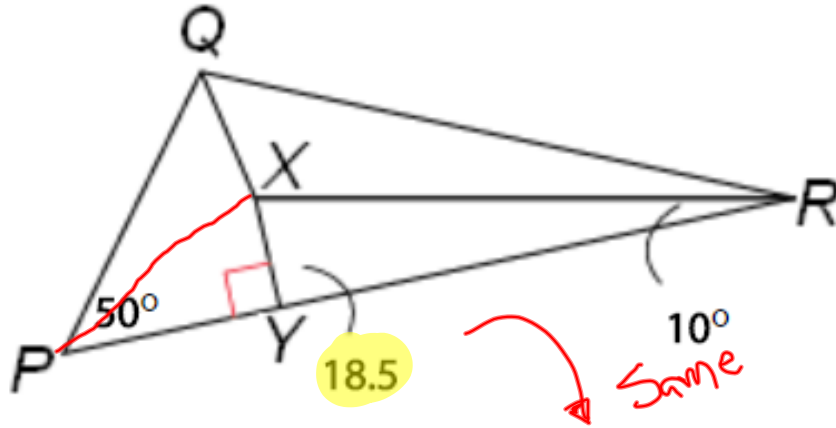
$m\angle LJM$ , given that  $m\angle KJM = 26^\circ$ .



Times By 2  
 $26 \cdot 2 = 52$

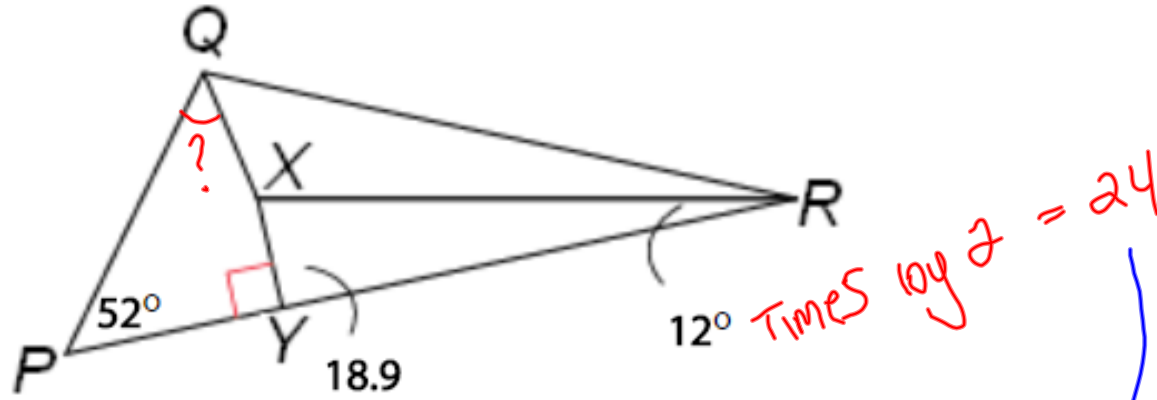
The measure of  $\angle LJM$  is °.

6.  $\overline{QX}$  and  $\overline{RX}$  are angle bisectors of  $\triangle PQR$ . Find the measure of the distance from  $X$  to  $\overline{PQ}$ .



The distance from  $X$  to  $\overline{PQ}$  is .

7.  $\overline{QX}$  and  $\overline{RX}$  are angle bisectors of  $\triangle PQR$ . Find the measure of  $\angle PQX$ .

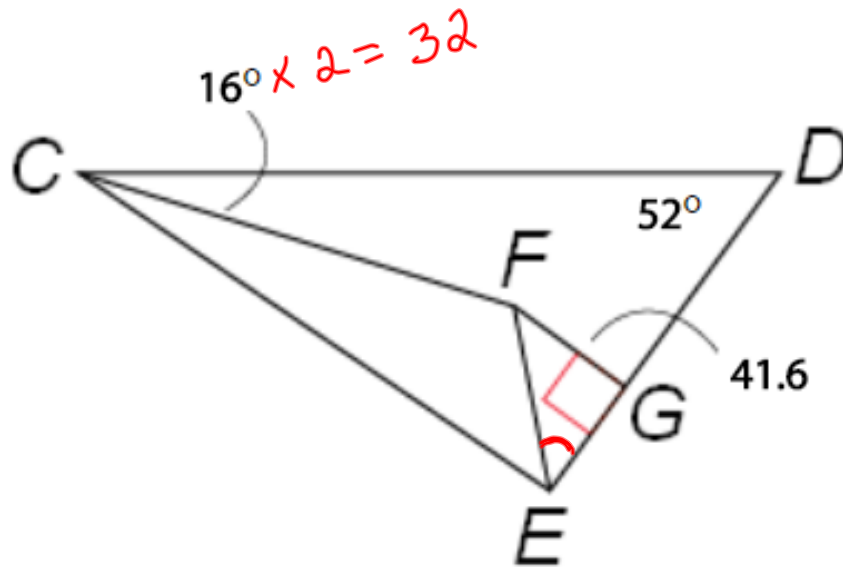


The measure of  $\angle PQX$  is   $^\circ$ .

$$\begin{array}{r}
 180 \\
 - 52 \\
 - 24 \\
 \hline
 104 \div 2 = 52
 \end{array}$$



8.  $\overline{CF}$  and  $\overline{EF}$  are angle bisectors of  $\triangle CDE$ . Find  $m\angle FED$ .

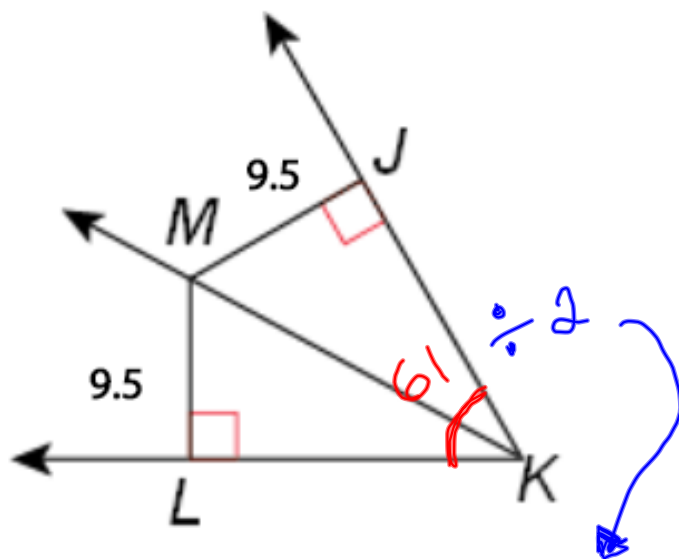


$$\begin{array}{r}
 180 \\
 - 32 \\
 - 52 \\
 \hline
 96 \div 2 \\
 = 48
 \end{array}$$

The measure of  $\angle FED$  is °.

9. Find the measure.

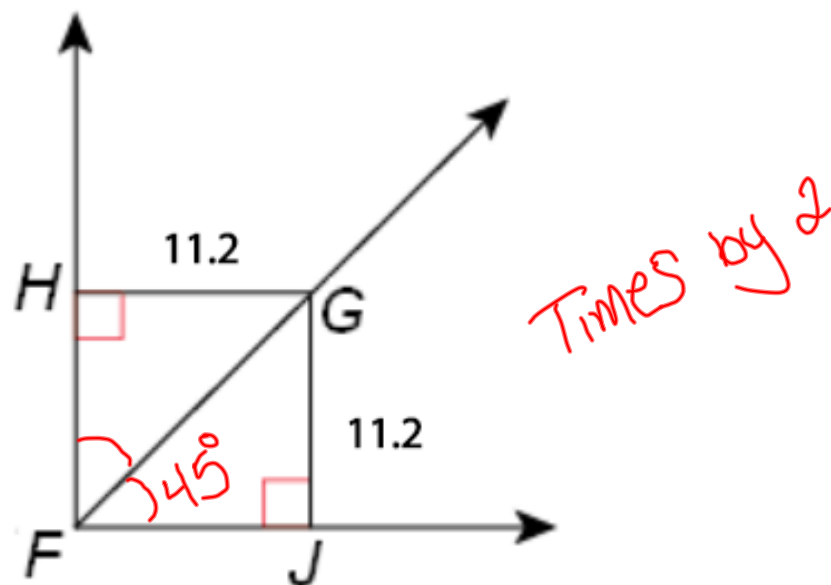
$m\angle LKM$ , given that  $m\angle JKL = 61^\circ$ .



The measure of  $\angle LKM$  is °.

10. Find the measure.

$m\angle HFJ$ , given that  $m\angle GFJ = 45^\circ$ .



The measure of  $\angle HFJ$  is °.