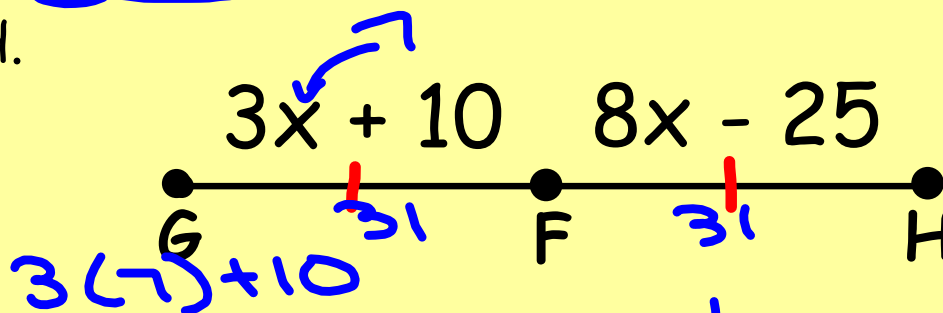


9/4/19 - Warm Up Problem

F is the midpoint of Segment GH. Find the value of x , GF, and GH.



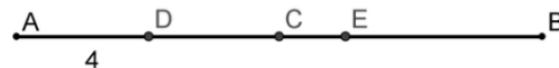
$$\begin{array}{r}
 x = \underline{\underline{7}} \\
 GF = \underline{\underline{31}} \\
 GH = \underline{\underline{62}}
 \end{array}$$

$$\begin{array}{r}
 3x + 10 = 8x - 25 \\
 -3x \quad -3x \\
 \hline
 10 = 5x - 25 \\
 +25 \quad +25 \\
 \hline
 35 = 5x \\
 x = 7
 \end{array}$$

Concept 2 Worksheet

Given Info

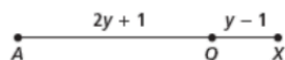
- AD = 4
- D is the midpoint of AC
- $\overline{AC} \cong \overline{CB}$
- $\overline{DE} \cong \overline{EB}$



- | | | |
|---------------|---------------|---------------|
| 1. DC = _____ | 2. CB = _____ | 3. AB = _____ |
| 4. DB = _____ | 5. EB = _____ | 6. CE = _____ |

Use the given information to write and solve an equation. Drawing a diagram is helpful. Show your work.

7. If AX = 45, find the value of y and AQ.



y = _____
AQ = _____

8. L is the midpoint of Segment KM. If KL = 3x + 2 and LM = 5x - 10, find x and KM.



x = _____
KM = _____

9. B is the midpoint of Segment AC. Find the value of x and AC if AB = 4x + 7 and BC = 5x - 4.

$4x + 7 = 5x - 4$
 $-4x$
 $7 = 1x - 4$
 $+4$
 $11 = x$
 $x = 11$
 $AC = 102$

10. Points X, Y, and Z are colinear. Point Y is between points X and Z. Find n and XY if XY = 2n + 1, YZ = 6n, and XZ = 81.

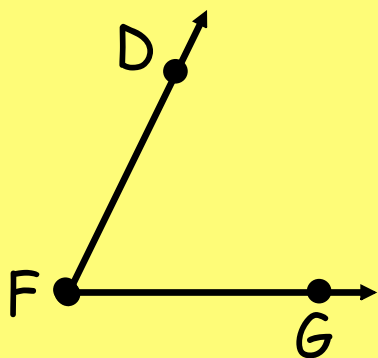
$2n + 1 + 6n = 81$
 $8n + 1 = 81$
 -1
 $8n = 80$
 $/8$
 $n = 10$
 $XY = 21$

Concept 2 - Measuring Angles

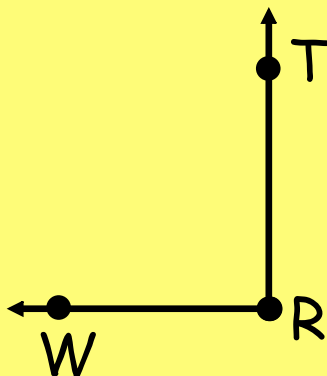
Goals: Find the measure of angles using protractors and the Angle Addition Postulate

The **measure** of an angle is a number of degrees that describes how open the angle is.

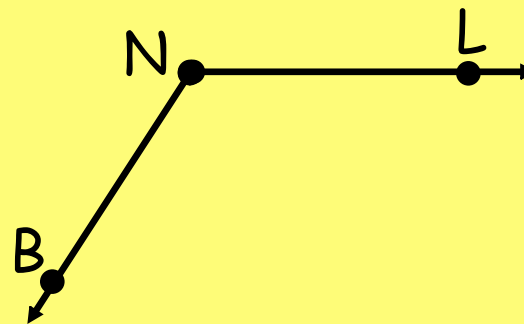
- the measure of an angle is abbreviated with a lowercase m in front of the angle's name



$$m\angle DFG = 63^\circ$$



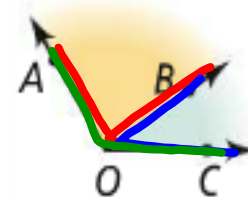
$$m\angle WRT = 90^\circ$$



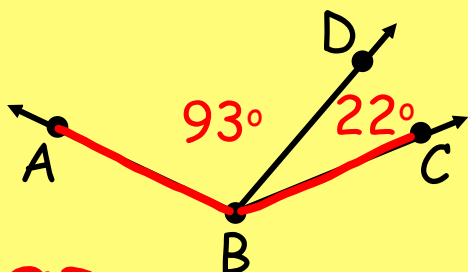
$$m\angle BNL = 121^\circ$$

Angle Addition Postulate

If point B is in the interior of $\angle AOC$, then $m\angle AOB + m\angle BOC = m\angle AOC$.

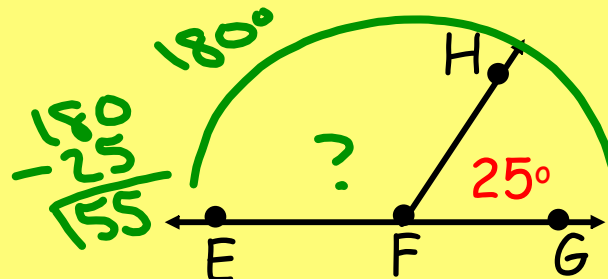


$$m\angle ABC = 115^\circ$$

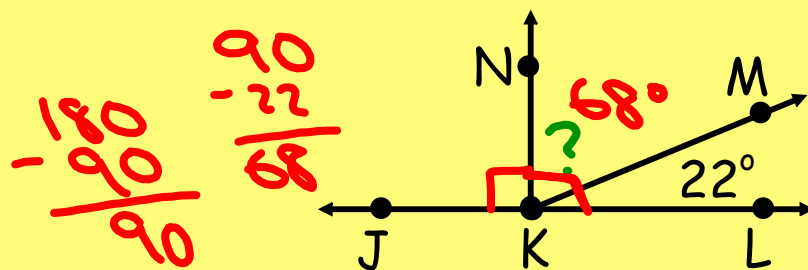


$$\begin{array}{r} 93 \\ + 22 \\ \hline 115 \end{array}$$

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



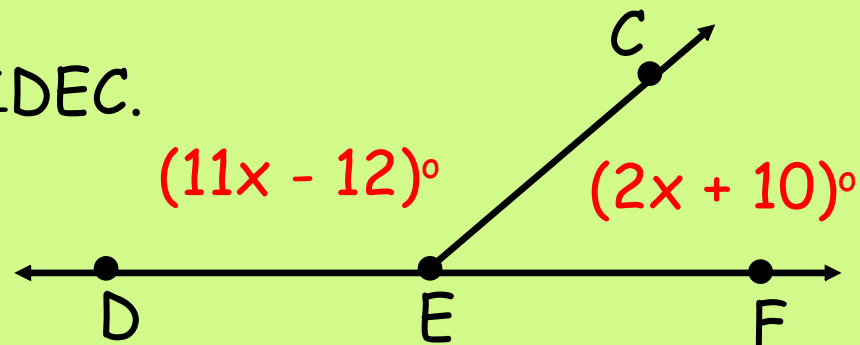
$$m\angle NKM =$$



Writing Equations to Find Angle Measures

$\angle DEF$ is a straight angle.

Find the value of x and $m\angle DEC$.



~~Are the angles congruent?~~

- Do they add up to something?

$$\begin{array}{r}
 11x - 12 + 2x + 10 = 180 \\
 13x - 2 = 180 \\
 \quad + 2 \quad \quad + 2 \\
 \hline
 13x = 182 \\
 \underline{\quad 13} \quad \quad \underline{\quad 13} \\
 x = 14
 \end{array}$$

$$\begin{array}{r}
 11(14) - 12 \\
 m\angle DEC = 142^\circ
 \end{array}$$

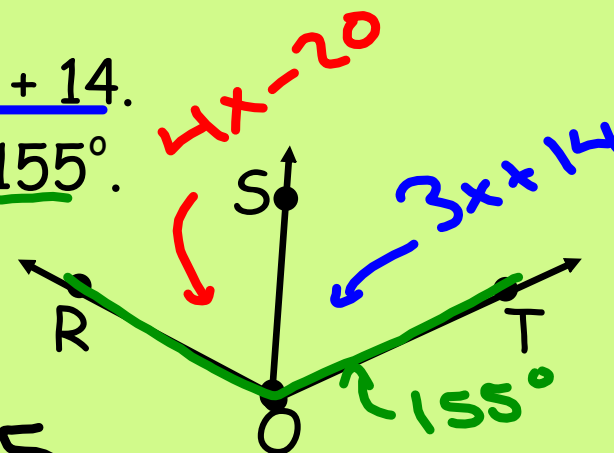
Writing Equations to Find Angle Measures

Write this one in your notes...

$m\angle ROS = 4x - 20$ and $m\angle SOT = 3x + 14$.

Find the value of x when $m\angle RO\text{\textcircled{S}} = 155^\circ$.

- ~~Are the angles congruent?~~
- Do they add up to something?



$$4x - 20 + 3x + 14 = 155$$

$$\begin{array}{r} 7x - 6 \\ + 6 \\ \hline \end{array} = \begin{array}{r} 155 \\ + 6 \\ \hline \end{array}$$

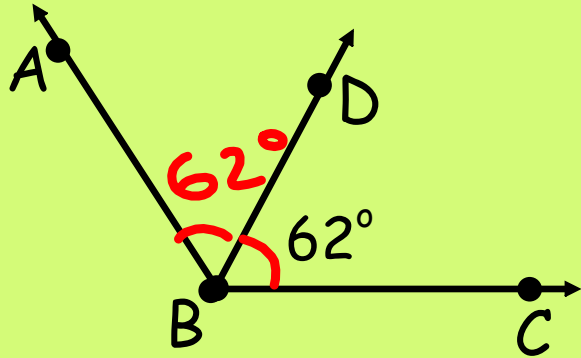
$$\begin{array}{r} 7x \\ \hline \end{array} = \begin{array}{r} 161 \\ \hline \end{array}$$

$$\boxed{x = 23}$$

$$4(23) - 20 = 72^\circ$$

$$3(23) + 14 = 83^\circ$$

Using Angle Addition and Angle Bisectors



\overrightarrow{BD} is an angle bisector.

$$m\angle ABD = 62^\circ$$

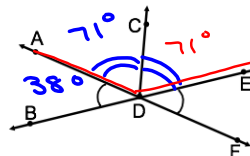
$$m\angle ABC = 124^\circ$$

Assignment:
 Concept 2 Worksheet - due by Fri. 9/6
 (back)

Using the Angle Addition Postulate

Use the given information and the diagram below to find the measure of each angle.

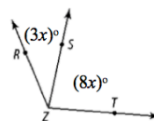
- Given Info:**
 $\angle ADB \cong \angle EDF$
 \overline{CD} is the angle bisector of $\angle ADE$
 $m\angle ADB = 38^\circ$
 $m\angle ADC = 71^\circ$



11. $m\angle ADE = 142^\circ$ 12. $m\angle CDE = \underline{\hspace{2cm}}$ 13. $m\angle EDF = \underline{\hspace{2cm}}$
 14. $m\angle BDC = \underline{\hspace{2cm}}$ 15. $m\angle BDE = \underline{\hspace{2cm}}$

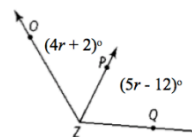
Use the given information to write a solve an equation. Show your work.

16. If $m\angle RZT = 110$, $m\angle RZS = 3x$, and $m\angle TZS = 8x$, find x and $m\angle RZS$.



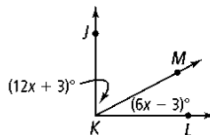
$x = \underline{\hspace{2cm}}$
 $m\angle RZS = \underline{\hspace{2cm}}$

17. If $m\angle OZP = 4r + 2$, $m\angle PZQ = 5r - 12$, and $m\angle OZQ = 125$, find r and $m\angle OZP$.



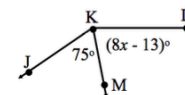
$r = \underline{\hspace{2cm}}$
 $m\angle OZP = \underline{\hspace{2cm}}$

18. $\angle JKL$ is a right angle. Find the value of x and $m\angle MKL$.



$x = \underline{\hspace{2cm}}$
 $m\angle MKL = \underline{\hspace{2cm}}$

19. \overline{KM} is an angle bisector of $\angle JKL$. Find the value of x and $m\angle JKL$.



$n = \underline{\hspace{2cm}}$
 $m\angle JKL = \underline{\hspace{2cm}}$