9/3/19 - Warm Up Problem

Solve each equation.

$3x + 6 + 4x - 15 = 12$

$-6 \quad +15$

$3x + 4x = 21$

$7x = 21$

$x = 3$

$8x - 3 = 5x + 15$

$+3 \quad +3$

$8x = 5x + 18$

$-5x \quad -5x$

$3x = 18$

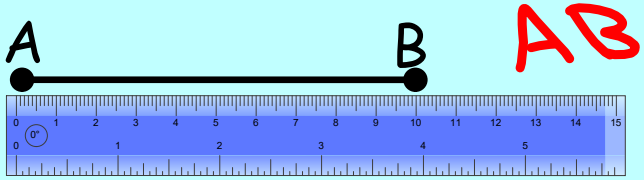
$x = 6$

Concept 2 - Segment and Angle Measures

(Sections 1.3 and 1.4 in textbook)

Goal: Use the Segment and Angle Addition Postulates to solve problems involving length and angle measure

The measure of a segment is its length in linear units like inches or centimeters.



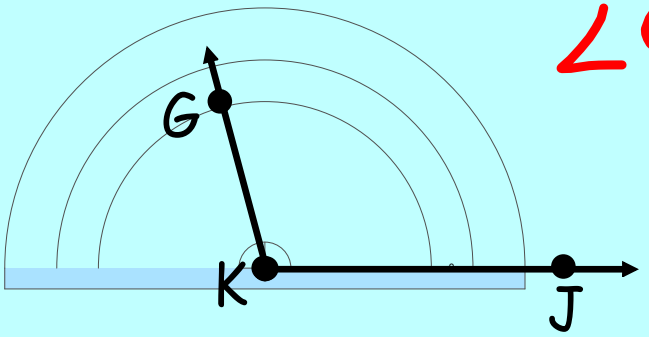
$\overline{AB}$

$\therefore AB = 10$ cm

"The length from A to B is 10 cm."

The measure of angles is given in degrees.

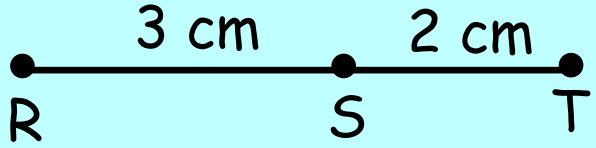
$\angle GKJ$



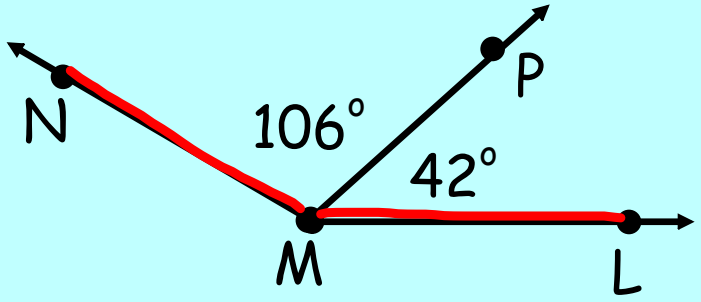
$m\angle GKJ = 105°$

"The measure of Angle GKJ is 104 degrees."

The measure of segments and angles can sometimes be figured out using other measures you are given.



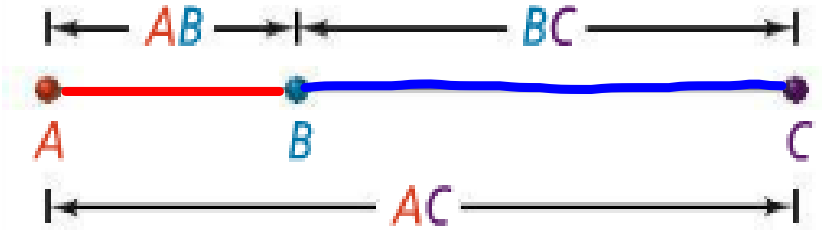
RT = 5 cm



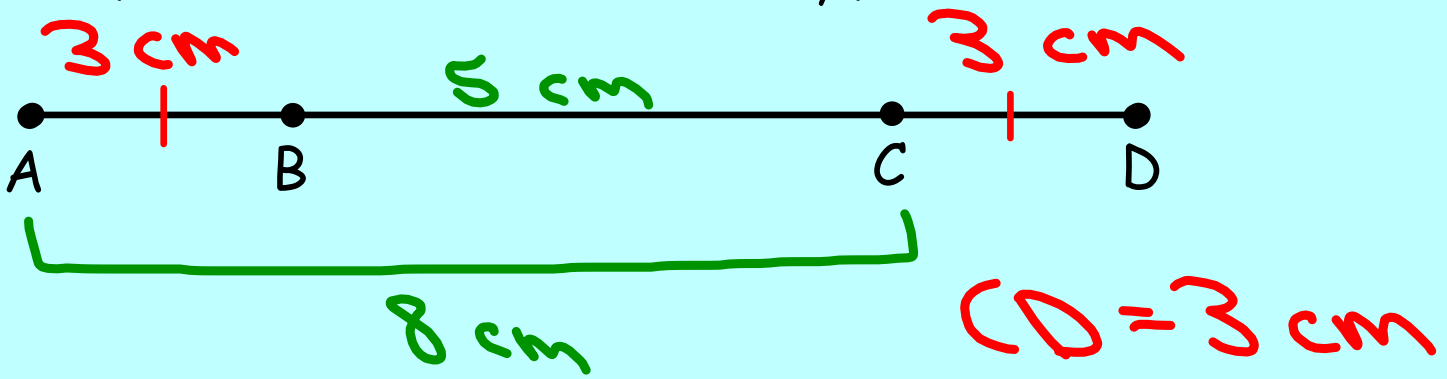
$m\angle NML = 148°$

Segment Addition Postulate

If three points A, B, and C are collinear and B is between A and C, then AB + BC = AC.

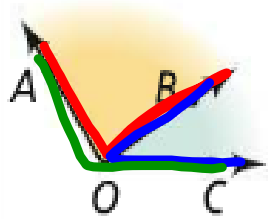


If AC = 8 cm and BC = 5 cm, find CD.

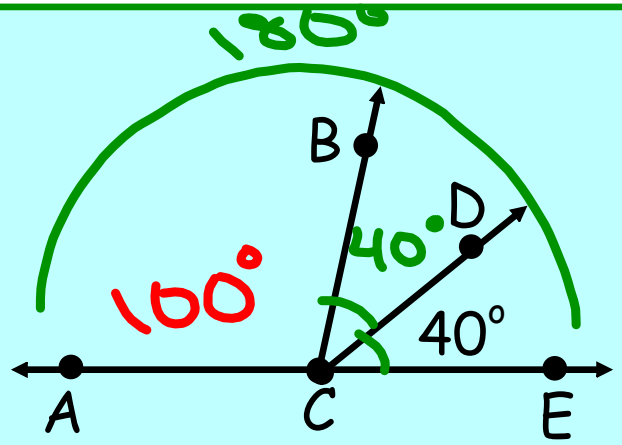


Angle Addition Postulate

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



$\angle ACE$ is a straight angle.
$\overrightarrow{CD}$ is an angle bisector.
Find $m\angle ACB$.

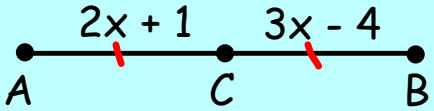


Finding Measures with Algebra

Problem Solving Tips

1. Draw and label a diagram (if you don't have one)
2. Think about how the segments or angles are related.
   - Are the congruent? ___ = ___
   - Do they add up to something? ___ + ___ = ___

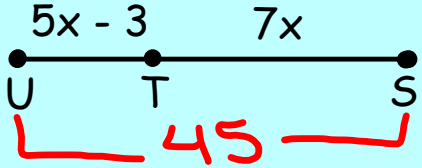
If C is the midpoint of AB, find the value of x and AC.



$2x+1 = 3x-4$
$-2x \quad -2x$
$1 = 1x - 4$
$+4 \quad +4$
$5 = x$

$AC = 2(5)+1 = 11$

If US = 45, find the value of x and TS.



$5x-3+7x = 45$
$12x - 3 = 45$
$+3 \quad +3$
$\frac{12x}{12} = \frac{48}{12}$
$x = 4$

$TS = 7(4)$
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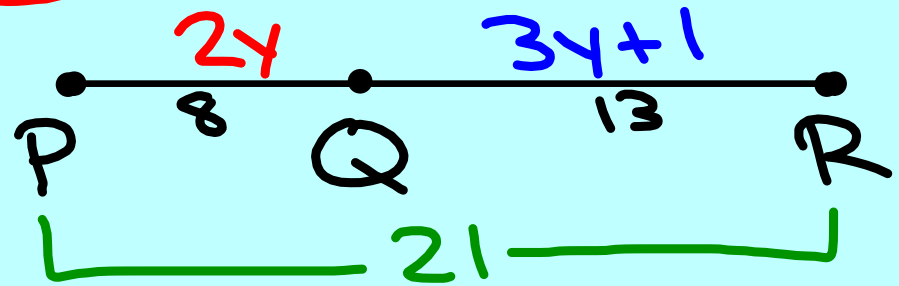
Do this example problem in your notes.

Points P, Q, and R are collinear and Q is between P and R. Find *y* if *PQ* = 2y, *QR* = 3y + 1, and *PR* = 21.



$$2y + 3y + 1 = 21$$
$$5y + 1 = 21$$
$$-1 \quad -1$$
$$\frac{5y}{5} = \frac{20}{5}$$
$$y = 4$$

Assignment:

Concept 2 Worksheet - due Friday 9/6

Show work on Algebra problems

Use the given information and the diagram below to find the length of each segment.

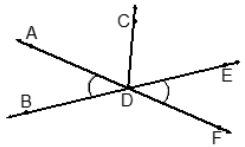
Given Info:
DB = 1
BE = 5
$\overline{DE} \cong \overline{EC}$
D is the midpoint of AB.
F is the midpoint of EC.

1. AD = _____ **2.** DE = _____ **3.** EC = _____

4. EF = _____ **5.** FC = _____ **6.** DF = _____

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 $\angle ADE$
$m\angle ADB = 38°$
$m\angle ADC = 71°$

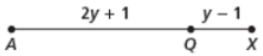


7. $m\angle$ ADE = _____ **8.** $m\angle$ CDE = _____ **9.** $m\angle$ EDF = _____

10. $m\angle$ BDC = _____ **11.** $m\angle$ BDE = _____

Use the given information to write and solve an equation to answer each question. Show your work. Drawing a diagram may be helpful when you are not given one.

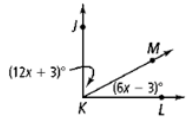
12. If AX = 45, find the value of y and AQ.



y = _____

AQ = _____

13. $\angle JKL$ is a right angle. Find the measure of x and $m\angle JKM$.



x = _____

$m\angle$ JKM = _____