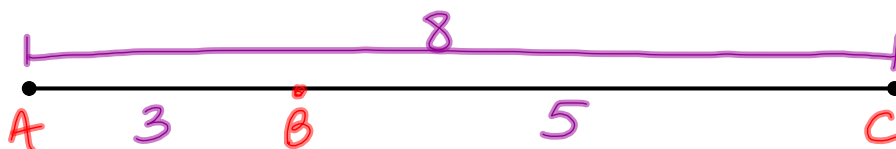


RECALL:



$$AC = 3 + 5 = 8$$

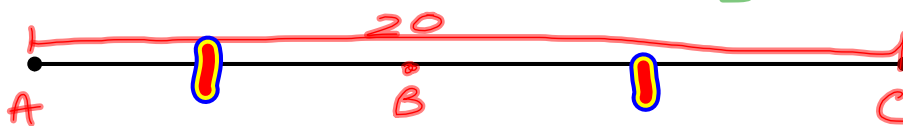


$$AB \quad \underline{x+3} + \underline{2x-5} = 20$$

$$3x - \cancel{2} = 20 + 2$$

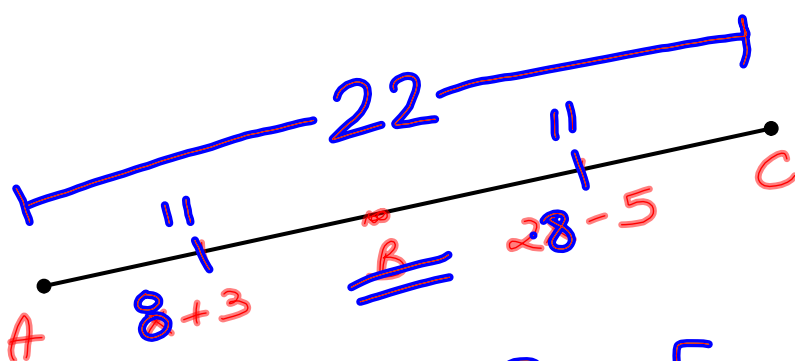
$$3x = 22$$

$$x = \frac{22}{3} = 7\frac{1}{3}$$



$$AB = 10$$

$$BC = 10$$



$$\textcircled{AC} \quad \begin{array}{r} -x+3 \\ -x \end{array} = \begin{array}{r} 2x-5 \\ -x \end{array}$$

$$\begin{array}{r} 3 = x \\ +5 \quad +5 \end{array}$$

$$8 = x$$

1.4 Measure and Classify Angles

Before You named and measured line segments.

Now You will name, measure, and classify angles.

Why? So you can identify congruent angles and angle relationships.

G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

PROTRACTOR A protractor MUST have evenly spaced intervals. This way we can be sure two angles with the same measure are $=, \simeq$.

RECALL:

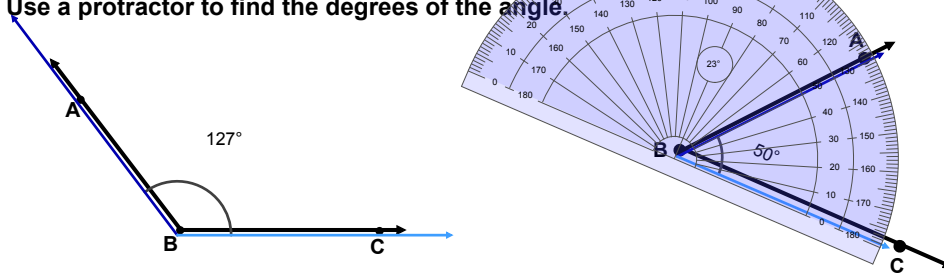
Label each angle type.

$0 < x < 90$ acute
 $90 < x < 180$ obtuse
 $x = 90$ right
 $x = 180$ straight

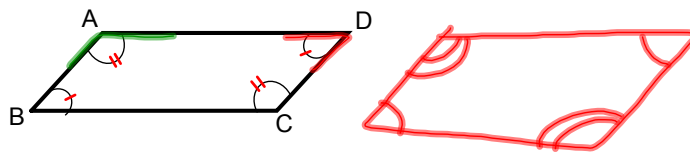
IMPORTANT points on using a protractor.

1. vertex of the angle is at the center of the protractor.
2. One ray goes through zero.
3. The degree "jives" with the angle type.

Use a protractor to find the degrees of the angle



CONGRUENT ANGLES: Angles are congruent if one can be moved onto the other so that they match exactly.



Naming \angle :

1, $\angle ABC$ (vertex at B)
 2, $\angle 1$
 3, $\angle CBA$ (vertex at B)
 4, $\angle B$

ANGLE CONGRUENCE POSTULATE:

If $m\angle A = m\angle C$ then $\angle A \cong \angle C$

-OR-

If $\angle A \cong \angle C$ then $m\angle A = m\angle C$

ANGLE ADDITION POSTULATE:

If a point "S" is in the interior of $\angle PQR$ then

$$m\angle PQS + m\angle SQR = m\angle PQR$$

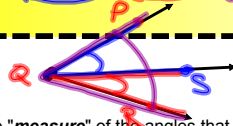


Figure $\angle A + \angle B$

Make sure that it is the "measure" of the angles that is being added NOT $\angle A + \angle B$
 the correct representation would be $m\angle A + m\angle B =$

EXAMPLE 1:

If $m\angle ABC = 130^\circ$ what is $m\angle ABD$?

$$130 - 20 = 110$$

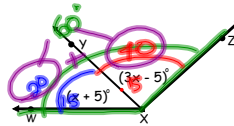


Use the given information to find the indicated angle measure.

EXAMPLE 2:

Given $m\angle WXZ = 60^\circ$, find $m\angle YXZ$ and $m\angle WXY$.

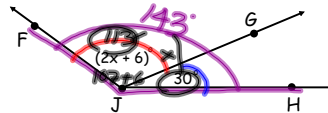
$$\begin{aligned} x + 5 + 3x - 5 &= 60 \\ 4x &= 60 \\ x &= 15 \end{aligned}$$



EXAMPLE 3:

Given $m\angle FJH = 143^\circ$, find x.

$$\begin{aligned} 2x + 6 + 30 &= 143 \\ 2x + 36 &= 143 \\ -36 & \quad -36 \\ 2x &= 107 \\ x &= 53.5 \end{aligned}$$



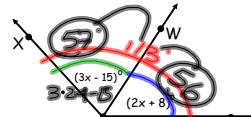
EXAMPLE 4:

Given $m\angle XYZ = 113^\circ$.

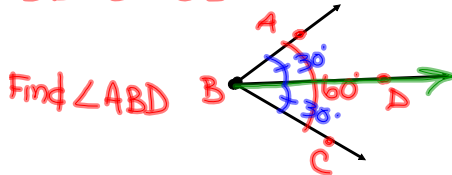
What is the value of x. = 24

Find the $m\angle XYW$ and $m\angle WYZ$.

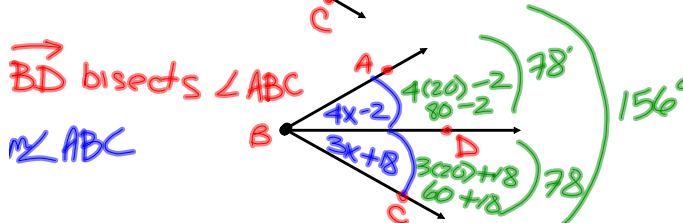
$$\begin{aligned} 3x - 15 + 2x + 8 &= 113 \\ 5x - 7 &= 113 \\ 5x &= 120 \\ x &= 24 \end{aligned}$$



\vec{BD} bisects $\angle ABC$



Find $\angle ABD$



$$\begin{aligned} 4x - 2 &= 3x + 18 \\ -3x & \quad -3x \\ x - 2 &= 18 \\ +2 & \quad +2 \\ x &= 20 \end{aligned}$$