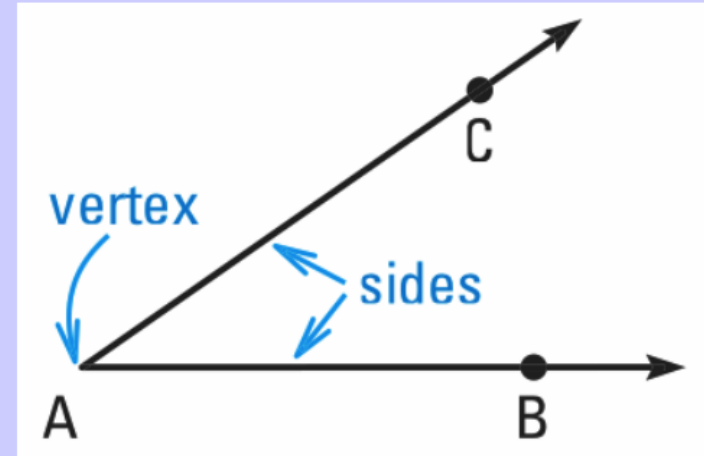


1.4 Measure and Classify Angles

Angle-Consists of 2 different rays with the same endpoint

Vertex-Is the endpoint of the rays that form the angle

*When naming an angle the vertex must be the middle letter.

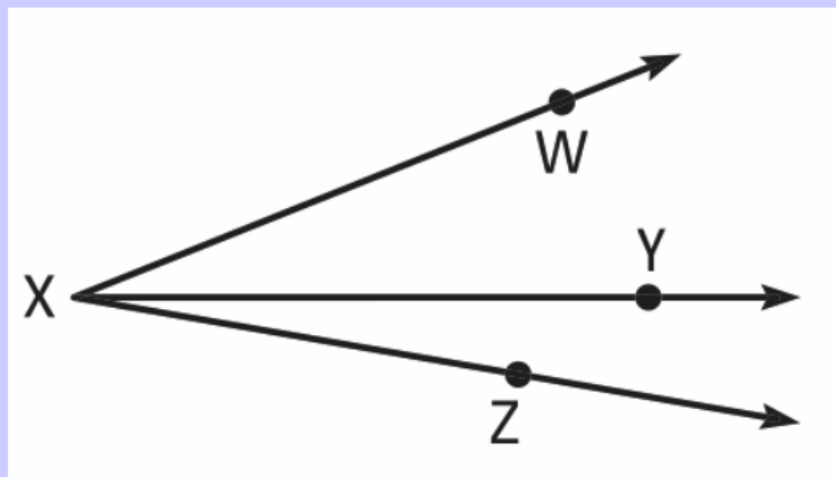


This angle could be name:

$\angle A$ or $\angle CAB$ or $\angle BAC$

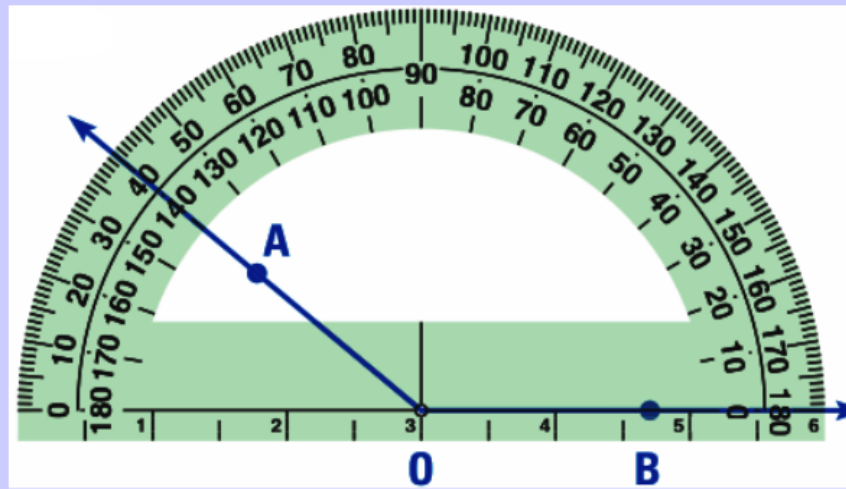
EXAMPLE 1 Name angles

Name the three angles in the diagram.



Measuring Angles

A protractor can be used to approximate the *measure* of an angle. An angle is measured in units called *degrees*.



Words: The measure of $\angle AOB$ is 140° .

Symbols: $m\angle AOB = 140^\circ$

POSTULATE

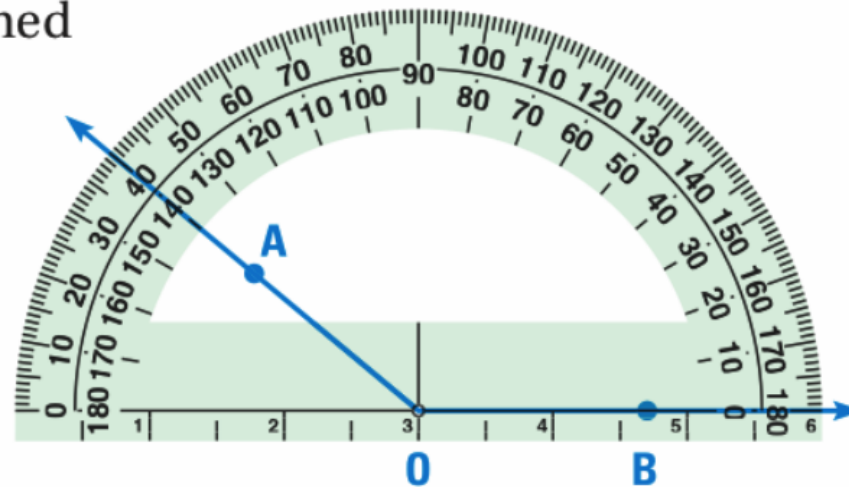
For Your Notebook

POSTULATE 3 Protractor Postulate

Consider \overrightarrow{OB} and a point A on one side of \overrightarrow{OB} .

The rays of the form \overrightarrow{OA} can be matched one to one with the real numbers from 0 to 180.

The **measure** of $\angle AOB$ is equal to the absolute value of the difference between the real numbers for \overrightarrow{OA} and \overrightarrow{OB} .



Classifying Angles:

Acute Angle-an angle with a measure less than 90 degrees

-

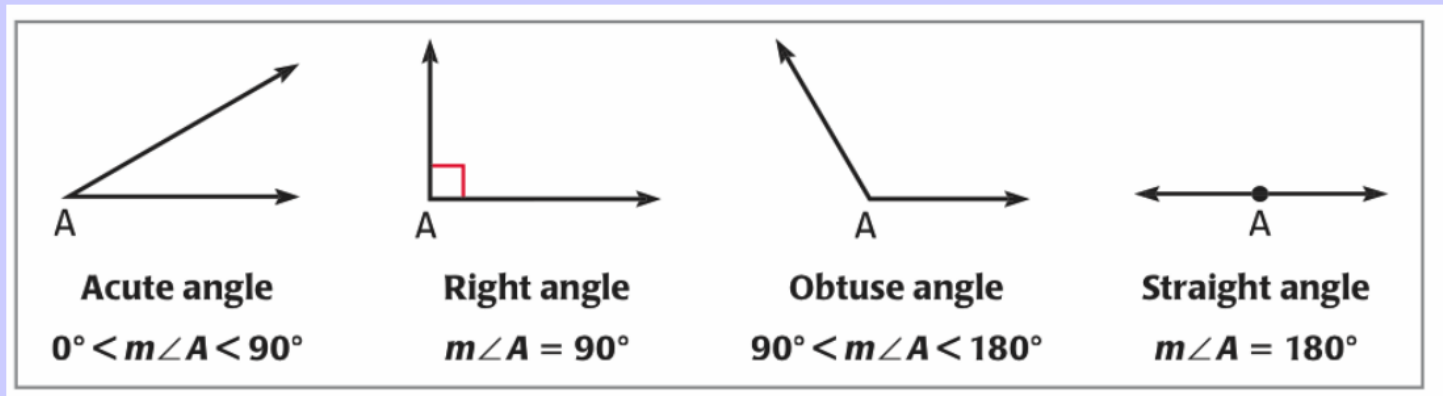
Right Angle-an angle with a measure a measure of measure of exactly 90 degrees

-

Obtuse Angle-an angle with a measure greater than 90 degrees and less than 180 degrees_

-

*straight angle-an angle with a measure exactly 180 degrees



EXAMPLE 2 Measure and classify angles

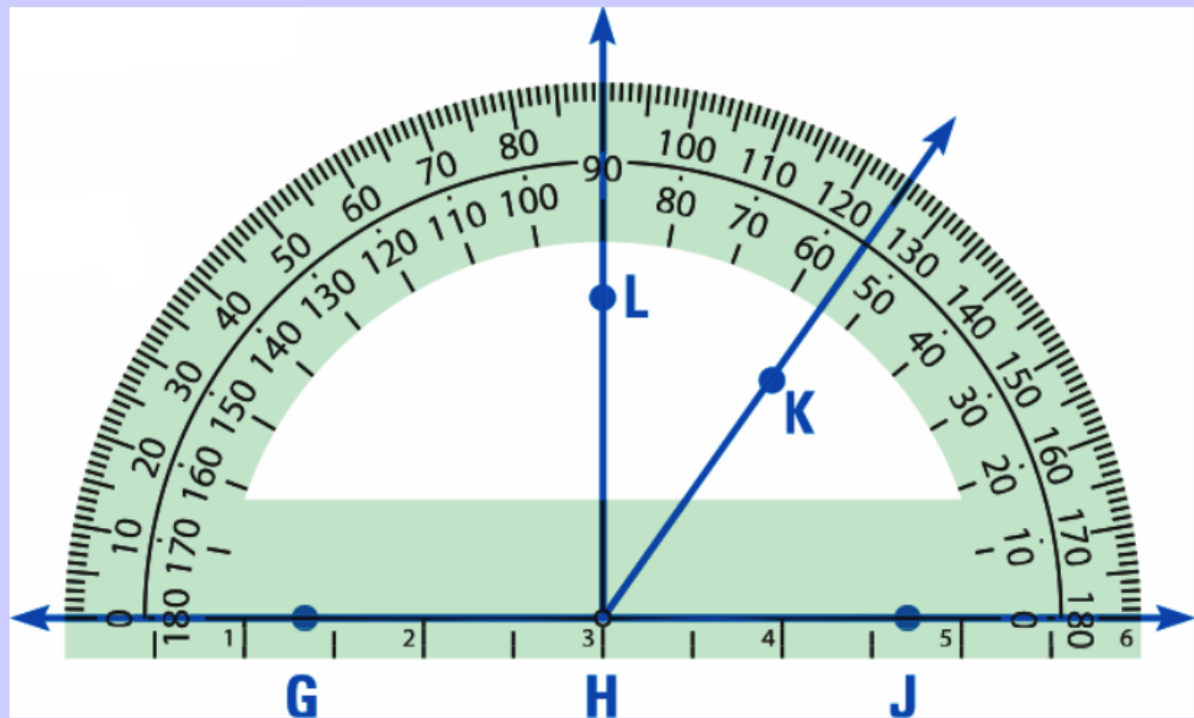
Use the diagram to find the measure of the indicated angle. Then classify the angle.

a. $\angle KHJ$

b. $\angle GHK$

c. $\angle GHJ$

d. $\angle GHL$



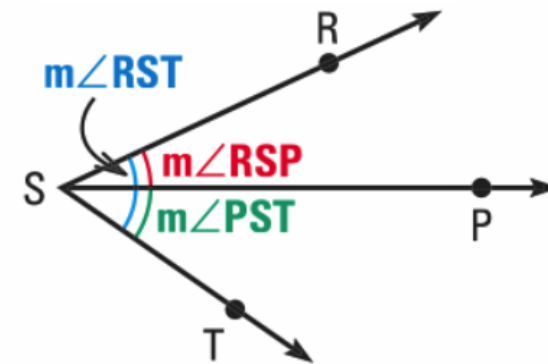
POSTULATE

For Your Notebook

POSTULATE 4 Angle Addition Postulate

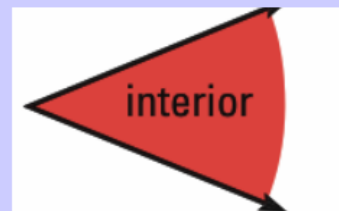
Words If P is in the interior of $\angle RST$, then the measure of $\angle RST$ is equal to the sum of the measures of $\angle RSP$ and $\angle PST$.

Symbols If P is in the interior of $\angle RST$, then
 $m\angle RST = m\angle RSP + m\angle PST$.



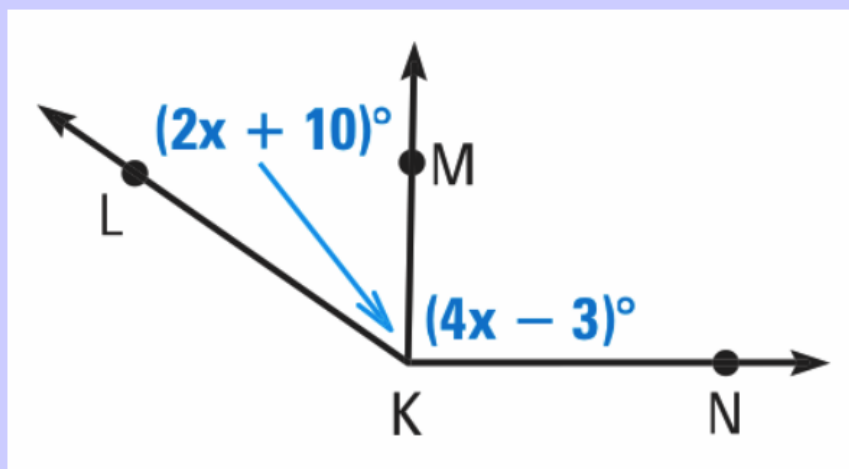
READ DIAGRAMS

A point is in the *interior* of an angle if it is between points that lie on each side of the angle.

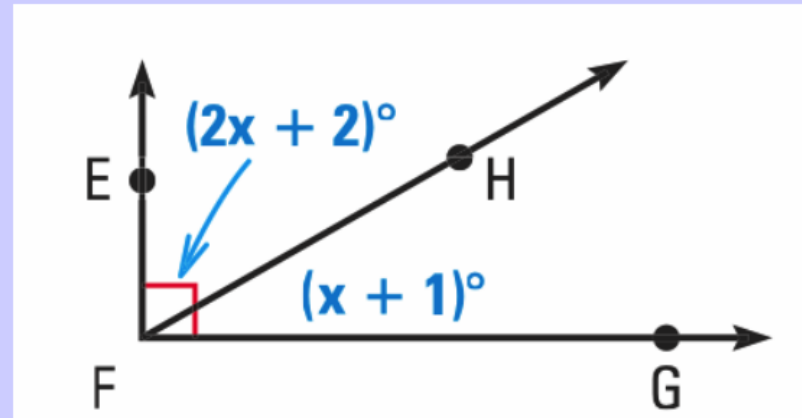


EXAMPLE 3 Find angle measures

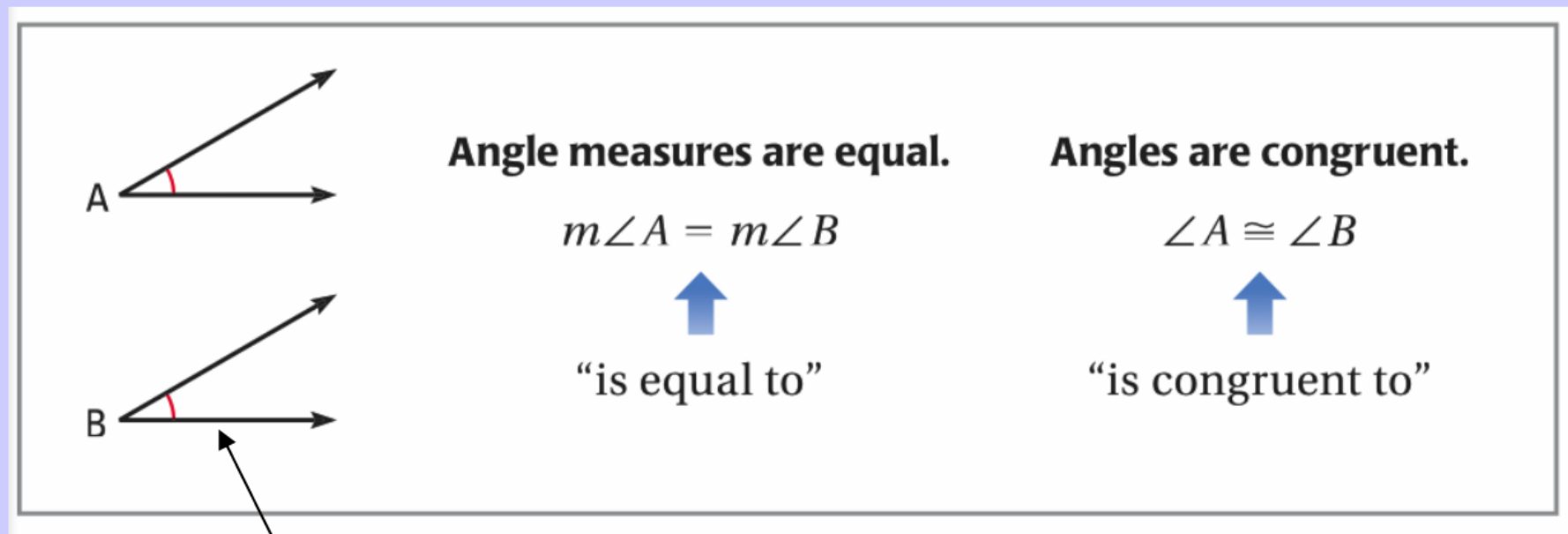
xy ALGEBRA Given that $m\angle LKN = 145^\circ$, find $m\angle LKM$ and $m\angle MKN$.



Given that $\angle EFG$ is a right angle,
find $m\angle EFH$ and $m\angle HFG$.



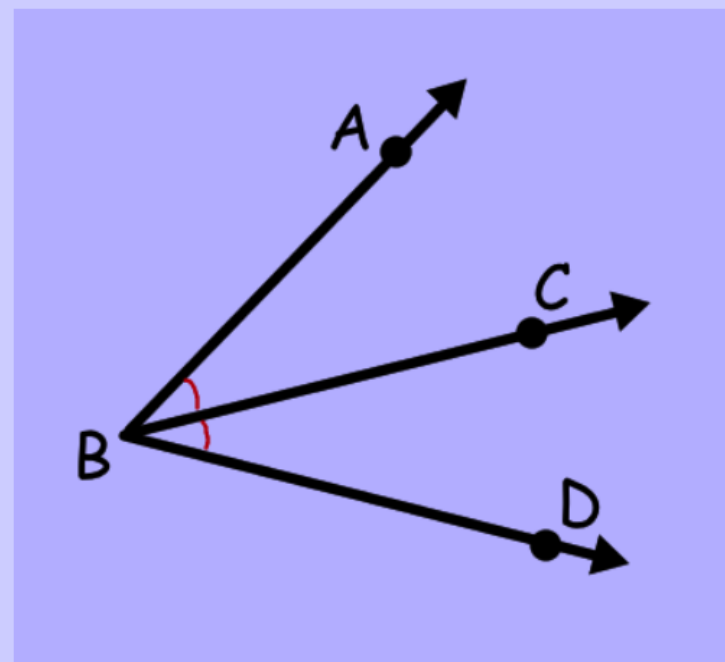
***congruent angles**-Angles that have the same measure



We use "tick" marks to show congruency.

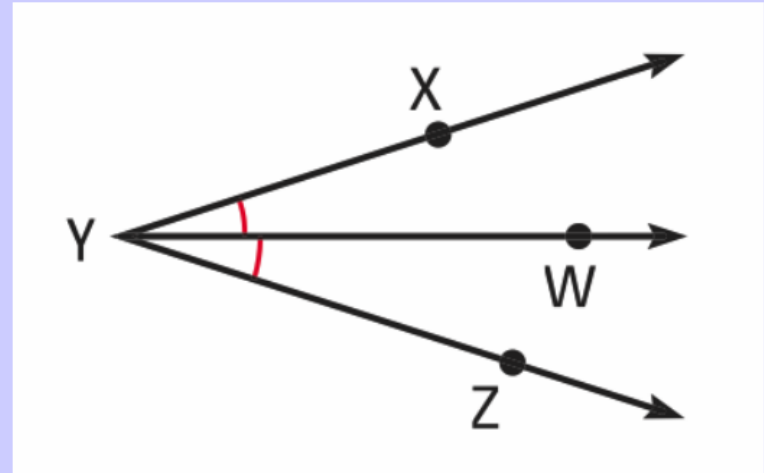
***angle bisector**-A ray that divides an angle into two angles that are congruent

\vec{BC} bisected $\angle ABD$,
forming two congruent angles:
 $\angle ABC$ and $\angle CBD$



EXAMPLE 5

In the diagram at the right, \overrightarrow{YW} bisects $\angle XYZ$, and $m\angle XYW = 18^\circ$. Find $m\angle XYZ$.



Assignment:

p. 28 (3-27 all, 34-42 even, 52)