

Lesson 9-3

Example 1 Measure Angles

a. Use a protractor to measure $\angle MNO$

Step 1 Place the center point of the protractor's base on vertex N . Align the straight side with side \overrightarrow{NO} so that the marker for 0° is on one of the rays.

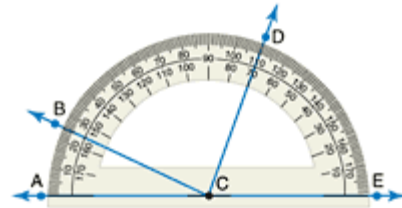
Step 2 Use the scale that begins at 0° at \overrightarrow{NO} . Read where the other side of the angle \overrightarrow{MN} , crosses this scale.

The measure of angle MNO is 50° .
Using symbols, $m\angle MNO = 50^\circ$.



b. Find the measures of $\angle BCE$, $\angle DCE$, and $\angle ACB$.

$m\angle BCE = 155^\circ$ \overrightarrow{CE} is at 0° on the right.
 $m\angle DCE = 70^\circ$ \overrightarrow{CD} is at 70° on the right.
 $m\angle ACB = 25^\circ$ \overrightarrow{CA} is at 25° on the left.



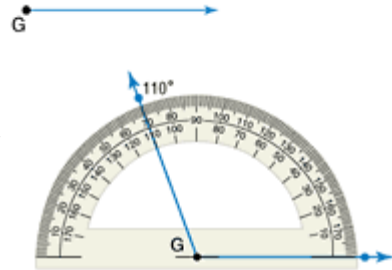
Example 2 Draw Angles

Draw $\angle G$ having a measure of 110° .

Step 1 Draw a ray with endpoint G .

Step 2 Place the center point of the protractor on G . Align the mark labeled 0 with the ray.

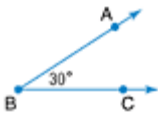
Step 3 Use the scale that begins with 0. Locate the mark labeled 110. Then draw the other side of the angle.



Example 3 Classify Angles

Classify each angle as *acute*, *obtuse*, *right*, or *straight*.

a.



$m\angle ABC < 90^\circ$.
So, $\angle ABC$ is acute.

b.



$m\angle DEF > 90^\circ$.
So, $\angle DEF$ is obtuse.

c.



$m\angle GHI = 90^\circ$.
So, $\angle GHI$ is right.

Example 4 Use Angles to Solve a Problem

HIKING The map of a hiking trail at a state park indicates a 31° hill. Classify this angle.

Since 31° is greater than 0° and less than 90° , the angle is acute.