

What You Will Learn

- ▶ Name angles.
- ▶ Measure and classify angles.
- ▶ Identify congruent angles.

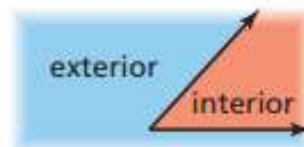
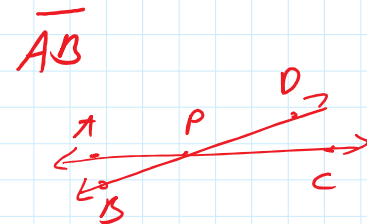
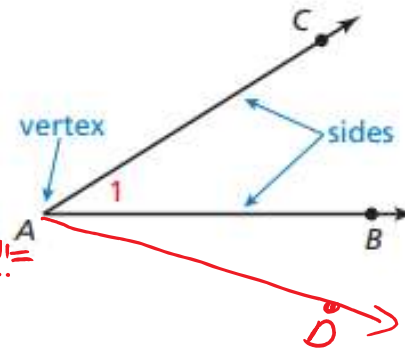
Naming Angles

An **angle** is a set of points consisting of two different rays that have the same endpoint, called the **vertex**. The rays are the **sides** of the angle.

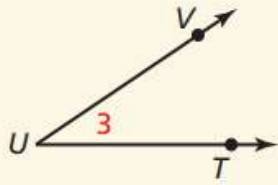
You can name an angle in several different ways.

- Use its vertex, such as $\angle A$. *← DANGER!!!*
- Use a point on each ray and the vertex, such as $\angle BAC$ or $\angle CAB$.
- Use a number, such as $\angle 1$.

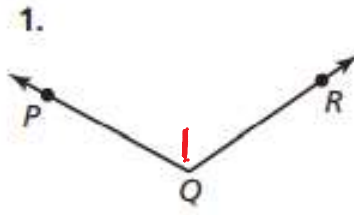
The region that contains all the points between the sides of the angle is the **interior of the angle**. The region that contains all the points outside the angle is the **exterior of the angle**.



Write three names for the angle.



$\angle VUT$
 $\angle TUV$
 $\angle 3$
 $\angle U$

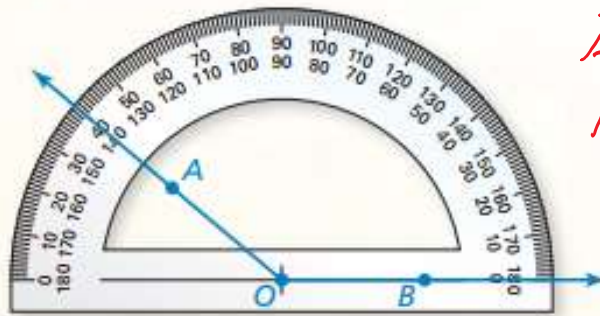


$\angle PQR$
 $\angle RQP$
 $\angle 1$
 $\angle Q$

Postulate 1.3 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 $\angle AOB$, which can be written as $m\angle AOB$, is equal to the absolute value of the difference between the real numbers matched with \overrightarrow{OA} and \overrightarrow{OB} on a protractor.

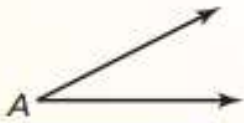


\overrightarrow{AO}
 \overrightarrow{AB}

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

$$\begin{array}{r}
 180 \\
 - 40 \\
 \hline
 140
 \end{array}
 \quad
 \begin{array}{r}
 0 \\
 -140 \\
 \hline
 140
 \end{array}$$

Types of Angles



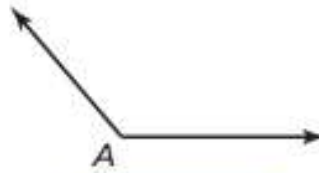
acute angle

Measures greater than 0° and less than 90°



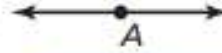
right angle

Measures 90°



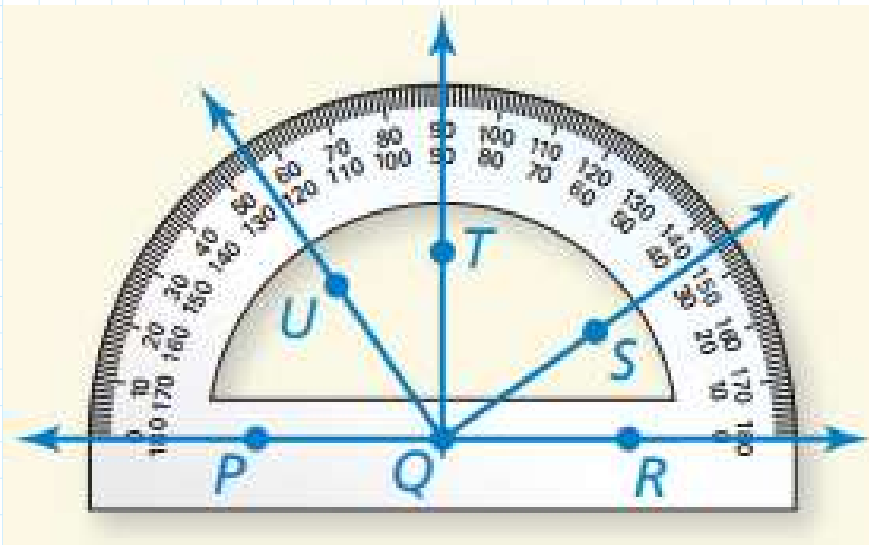
obtuse angle

Measures greater than 90° and less than 180°



straight angle

Measures 180°



Find the measure of each angle. Then classify each angle.

a. $\angle RQU$

$\sim \angle RQU = 125^\circ$
obtuse

b. $\angle TQU$

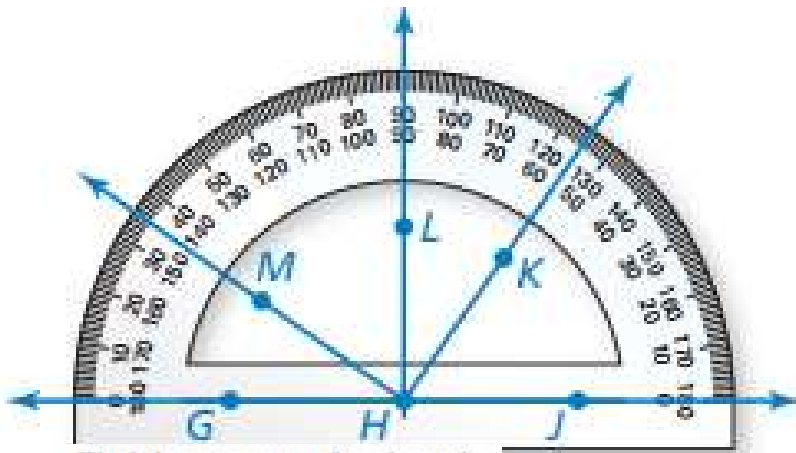
$\sim \angle TQU = 35^\circ$
acute

c. $\angle UQS$

$\sim \angle UQS = 90^\circ$
right

$$\begin{array}{r} 180 \\ - 55 \\ \hline 125 \end{array}$$

$$\begin{array}{r} 125 \\ - 90 \\ \hline 35 \end{array} \quad \begin{array}{r} 125 \\ - 35 \\ \hline 90 \end{array}$$



Find the measure of each angle.
Then classify each angle.

a. $\angle GHK$

$$m\angle GHK = 125^\circ$$

obtuse

b. $\angle JHL$

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

right

c. $\angle LHK$

$$m\angle LHK = 35^\circ$$

acute

Practice sec 1.5.1
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