1.3 All About Angles

Objectives: To name and classify angles.

Measure and construct angles and

angle bisectors.

What do you call people who are in favor of tractors?

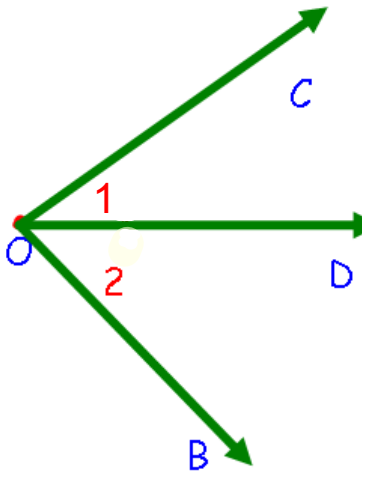
A transit is a tool for measuring angles. It consists of a telescope that swivels horizontally and vertically. Using a transit, a surveyor can measure the *angle* formed by his or her location and two distant points.

Key Terms

Angle: Two rays with a common endpoint.

Sides: The Rays

Vertex: The point that the rays have in common.



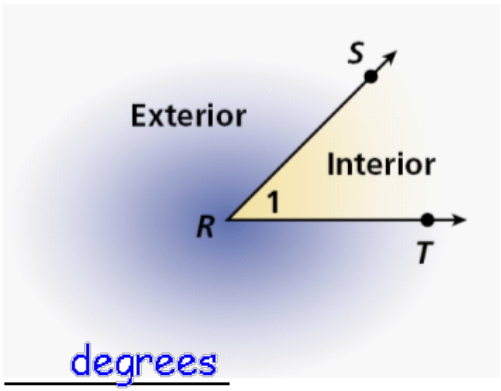
Naming Angles: Angles are named by...
the vertex.
the three points with the vertex listed in the middle.
or with numbers without a degree symbol.

What are the ways to name the angles above?

The set of all points between the sides of the angle is the **interior of an angle**

The **exterior of an angle** all points outside

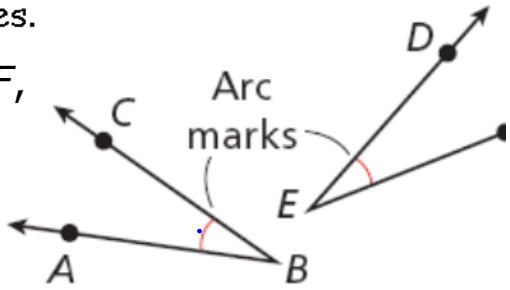
Congruent angles have the same measure.



Measure of Angles: Angles are measured in degrees

We use a protractor to measure angles.

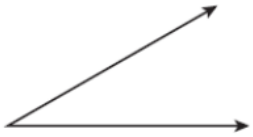
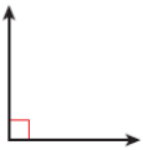
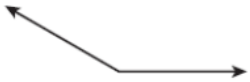
In the diagram, $m\angle ABC = m\angle DEF$, so you can write $\angle ABC \cong \angle DEF$.



Arc marks show two angles are congruent.

Angle Classification

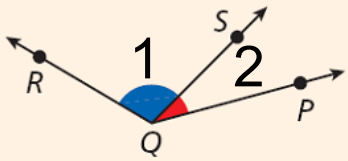
Types of Angles

Acute Angle	Right Angle	Obtuse Angle	Straight Angle
			
Measures greater than 0° and less than 90°	Measures 90°	Measures greater than 90° and less than 180°	Formed by two opposite rays and meaures 180°

Postulate 1-3-2 Angle Addition Postulate

If *S* is in the interior of ∠*PQR*, then m∠*PQS* + m∠*SQR* = m∠*PQR*.

(∠ Add. Post.)

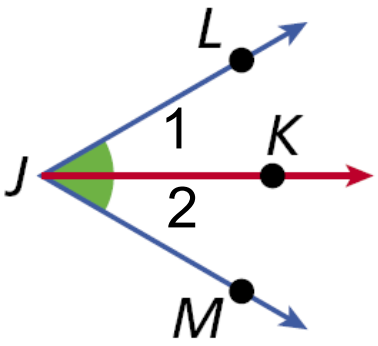


This is the same as the segment addition postulate except we are putting two angles together to make a bigger one.

<1 + <2 = the big <PQR

An **angle bisector** is a ray that divides an angle into two congruent angles.

$\overrightarrow{JK}$ bisects $\angle LJM$; thus $\angle LJK \cong \angle KJM$.



<1 = <2