

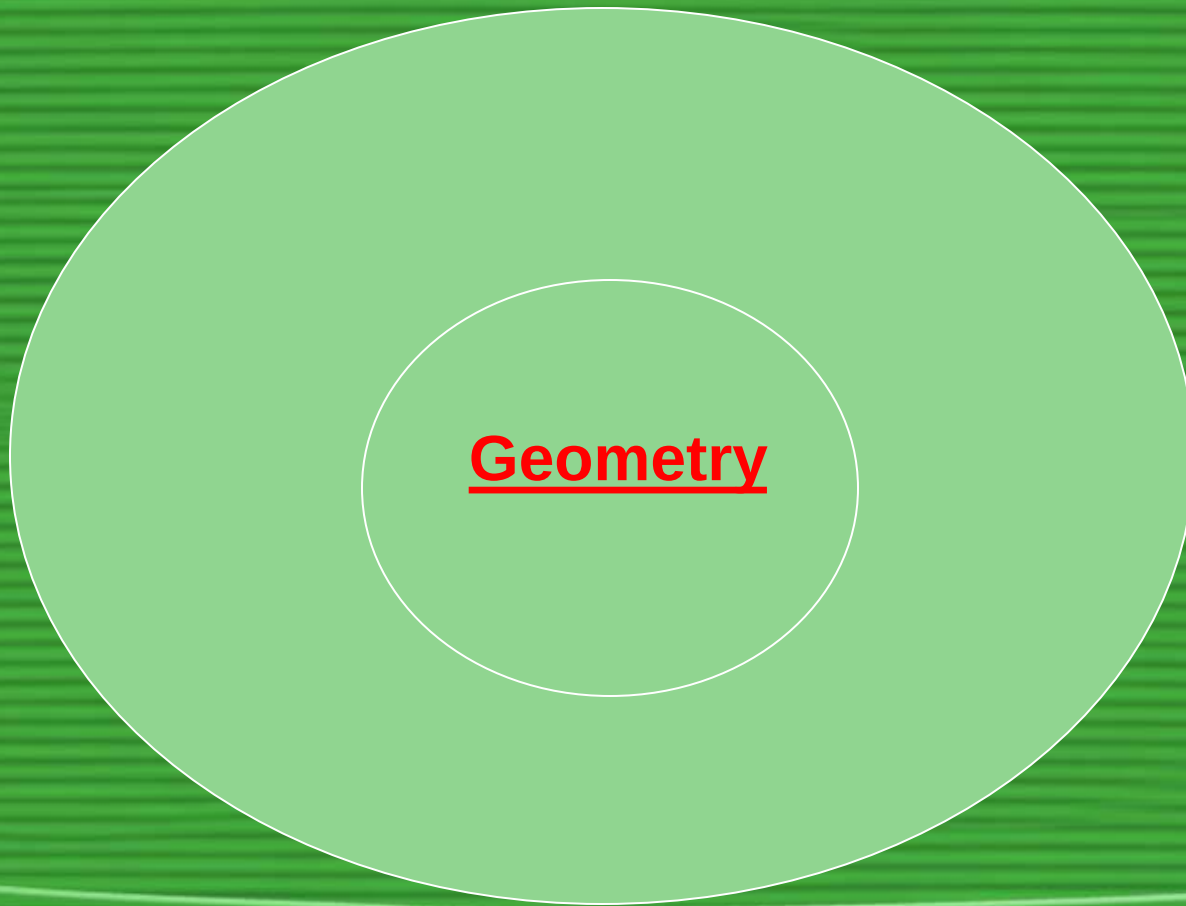
What are we studying next?

G I'm a



Warm-up

Use a circle map to define **Geometry**



Lesson 8.1

Points, lines, Planes & Angles

**Objective – students will classify
and name figures.**

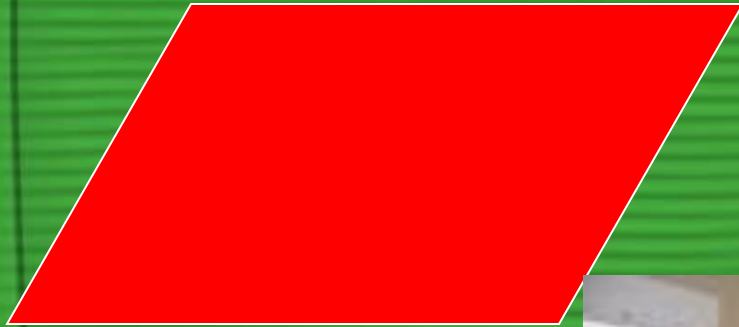
Standards

In this lesson you will:

- Identify and construct basic elements of geometric figures.
(MG 3.1)
- Demonstrate an understanding of the conditions that indicate two line segments are congruent. (MG 3.4)
- Describe how two or more objects are related in space.
(MG 3.0)

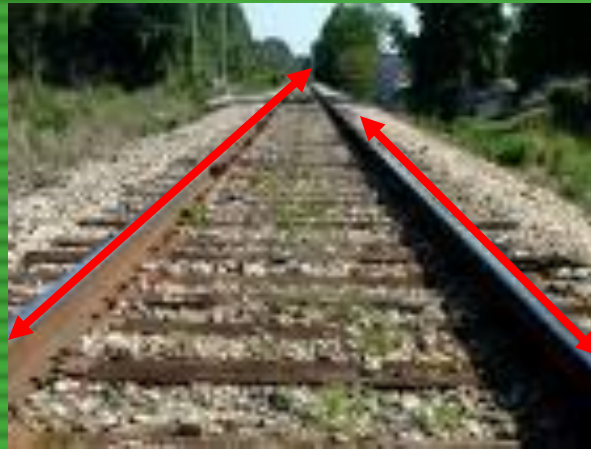
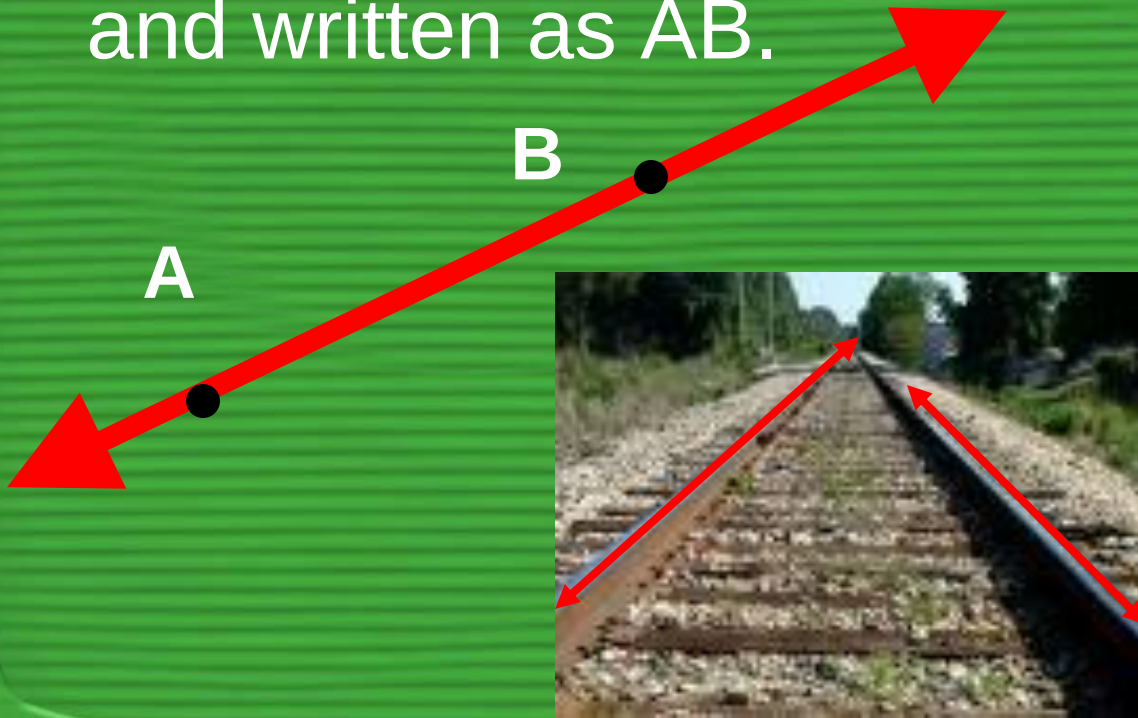
Plane

- A Plane is a *flat surface* of any shape that can go on forever.



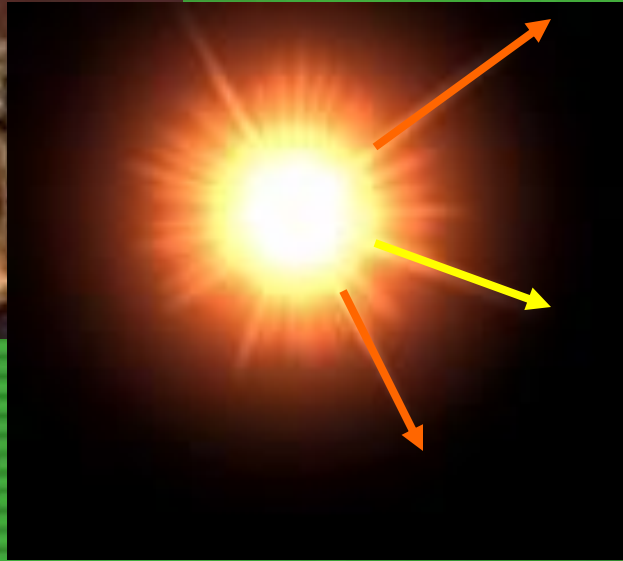
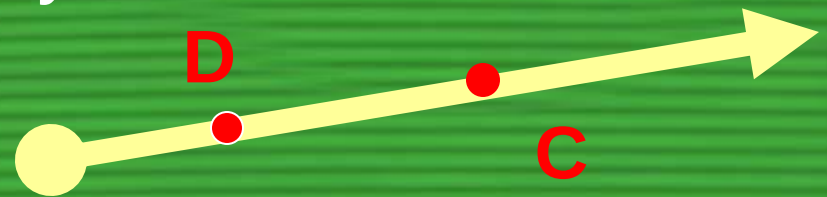
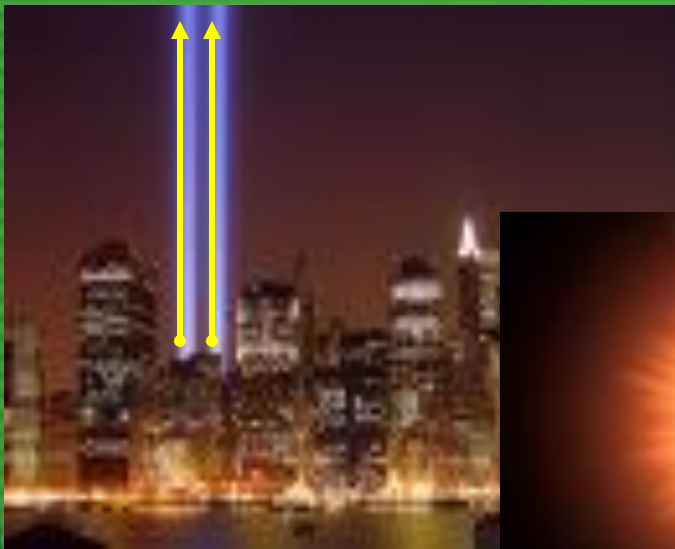
line

- A line extends forever in *both* directions. A line is labeled with two arrows on the ends and written as AB.



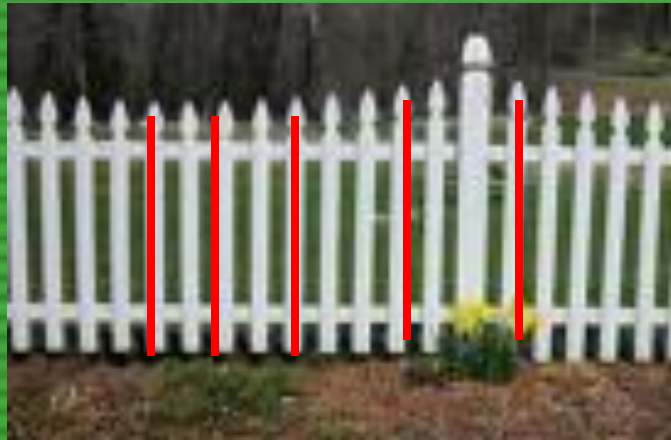
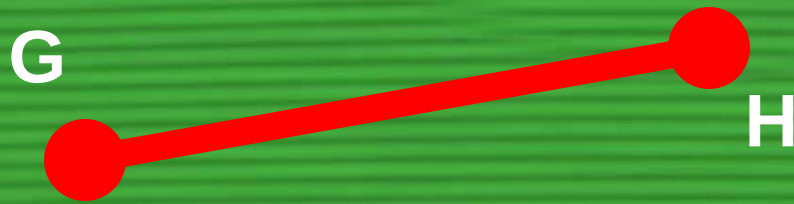
Ray

- A ray has one endpoint and the other is like a line, extending indefinitely. This means one point and one arrow. A ray is labeled as $\overrightarrow{DC}$.



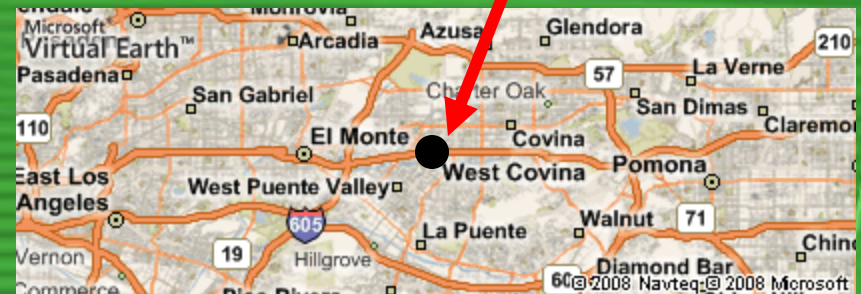
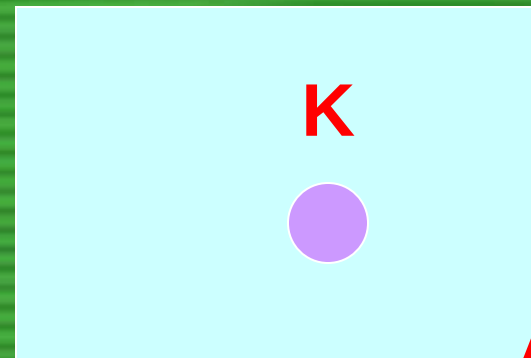
line Segment

- A line segment has *two endpoints*, making it a definite length. It can be labeled as $\overline{GH}$.



Point

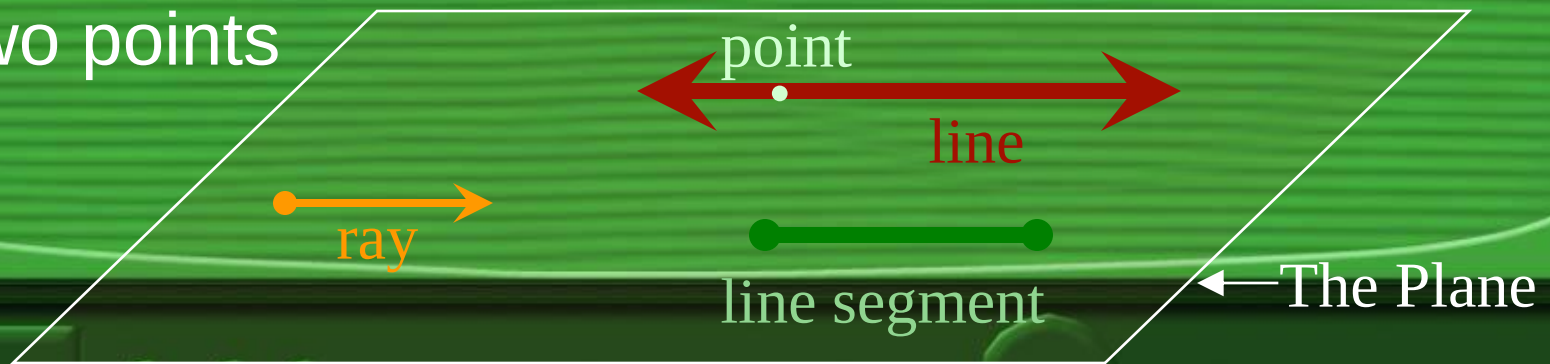
- A point is a *location in a plane or space*. It is labeled **point K**.



Vocabulary review:

Identify the figure

- Plane: 2-dimensional space
- Line: Straight line that extends forever in both directions.
- Point: A “spot” on a line
- Ray: Starts at one point & extends forever in ONE direction
- Line Segment: Part of a line that is between two points



Naming Rays, lines and Segments



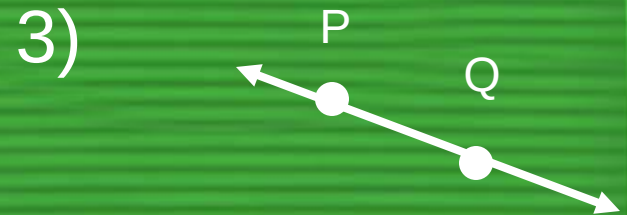
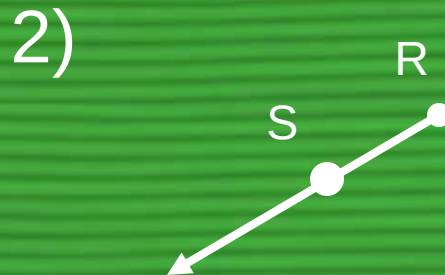
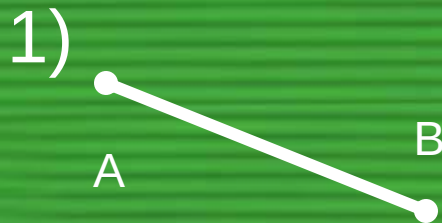
- Lines: $\overleftrightarrow{RS}$ $\overleftrightarrow{ST}$ $\overleftrightarrow{RT}$
- Rays: $\overrightarrow{PQ}$ $\overrightarrow{PR}$
- Line Segments: $\overline{MN}$ $\overline{NM}$

Match the term with the figure

A. Ray

B. Line

C. Line Segment

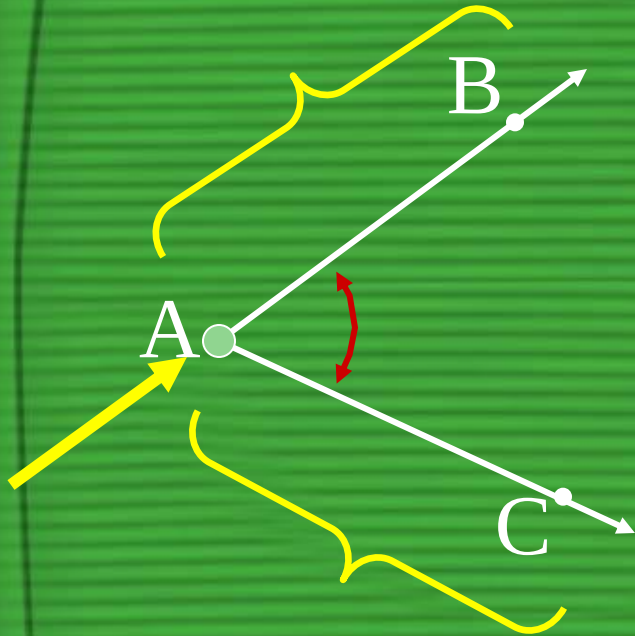


C

A

B

Naming Angles



Vertex

Point A

Angle Name

$\angle BAC$

$\angle CAB$

Sides

$\overrightarrow{AB}$

$\overrightarrow{AC}$

$\angle A$

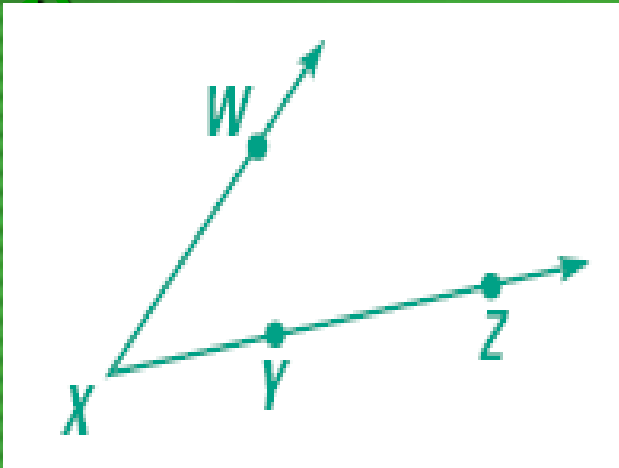
Angle -

A figure formed by two rays and a common endpoint called a vertex.

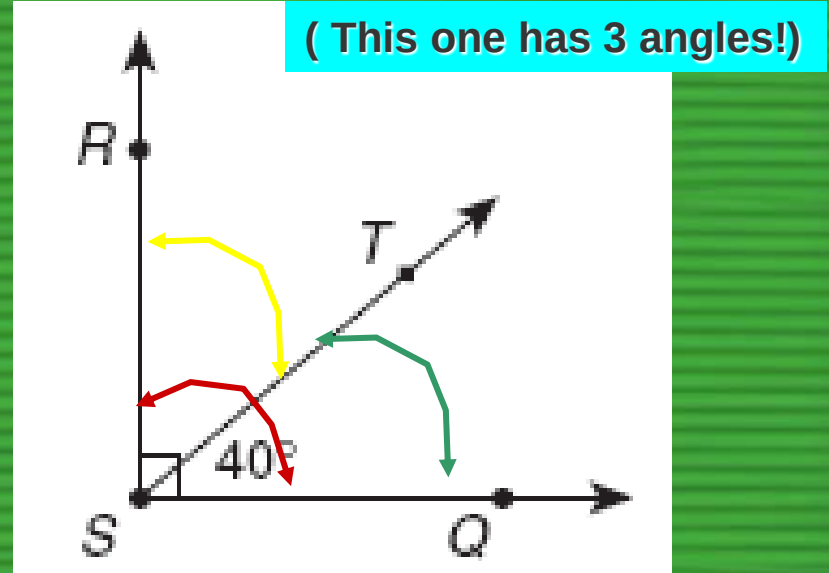
We name angles using the VERTEX and other letters around it. The Vertex letter always goes in the center.

Angles

Identify the vertex and name the angles



2)



Vertex

Angle Name

Angle Name

Angle Name

Point X

$\angle WXZ$

$\angle ZXW$

$\angle X$

$\angle RST$

$\angle TSR$

Angle Name

$\angle RSQ$

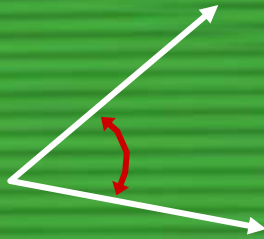
$\angle QSR$

$\angle S$

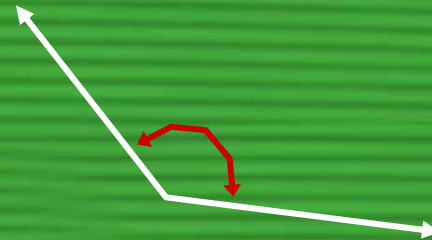
$\angle TSQ$

$\angle QST$

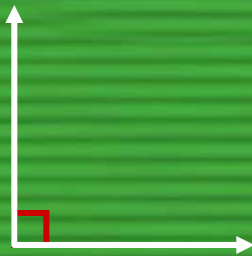
Types of Angles



Acute - Angles that measure less than 90° .



Obtuse - Angles that measure more than 90° and less than 180° .

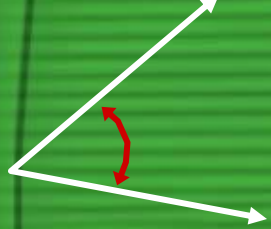


Right - Angles that measure exactly 90° .



Straight - Angles that measure exactly 180° .

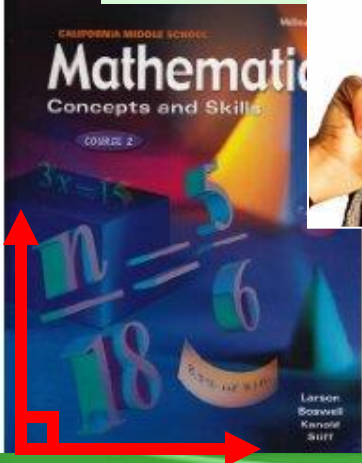
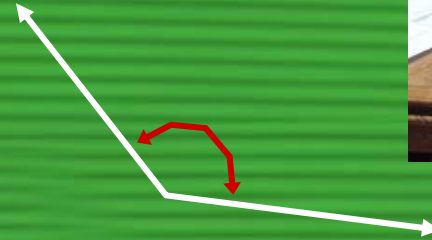
Types of Angles



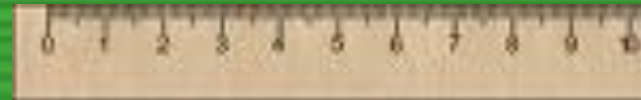
Acute - Angles that measure less than 90° .



Obtuse - Angles that measure more than 90° and less than 180° .



Right - Angles that measure exactly 90° .

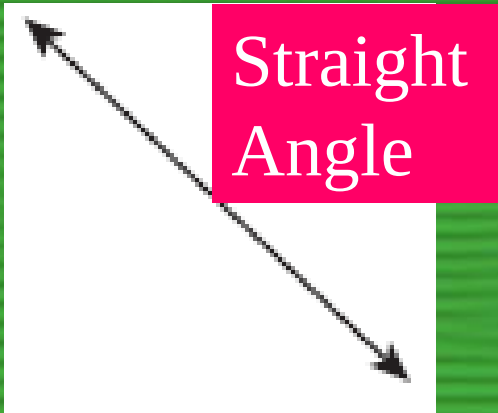


Straight - Angles that measure exactly 180° .

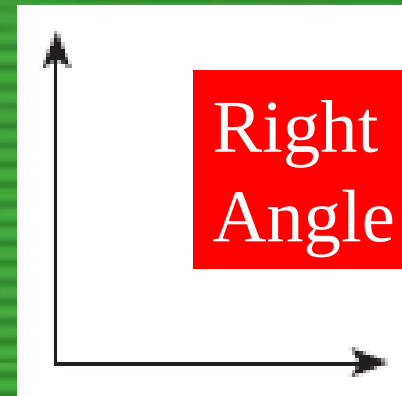
Types of Angles

Identify the type of angle.

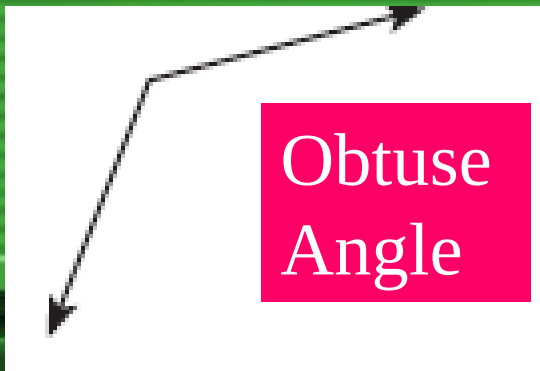
1)



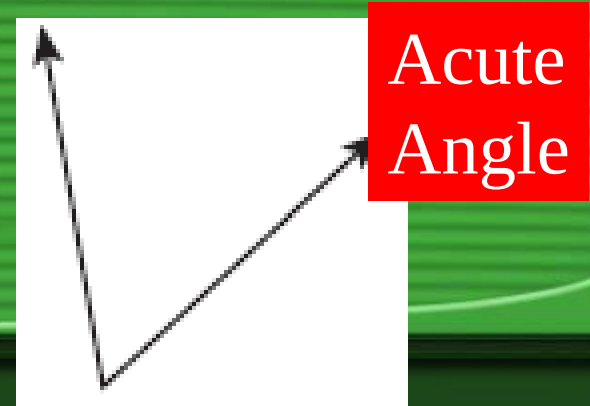
3)



2)

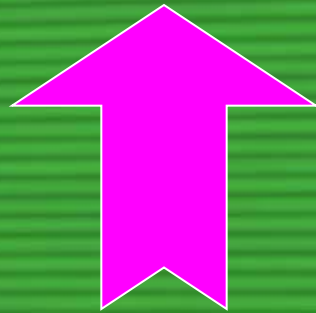


4)



Now watch this....

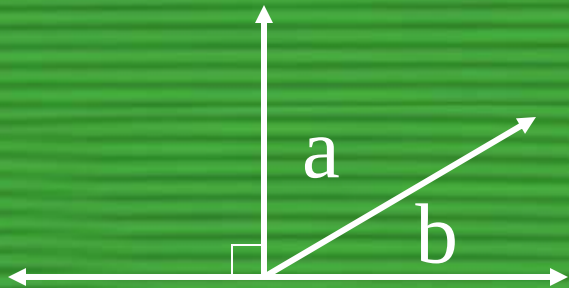
- BrainPop



click Me

Complementary Angles

Complementary Angles - Angles whose sum is 90°



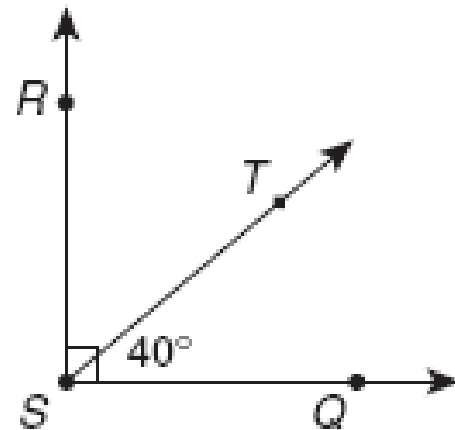
$$m\angle a + m\angle b = 90^\circ$$



$$m\angle x + m\angle y = 90^\circ$$

Complementary angles may not be adjacent.

Example: The
complement would be
 $90 - 40 = 50$



Find the complement of the angle measures below.

1) 30° 60°

2) 49° 41°

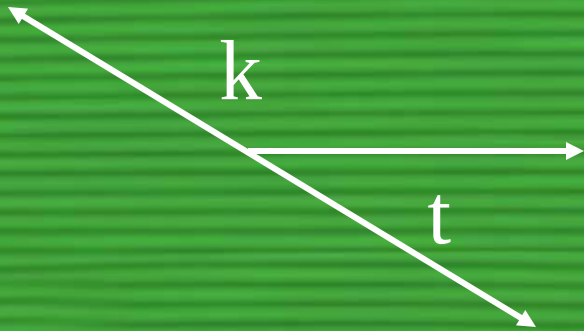
3) 80° 10°

4) 100° **Has no complement**

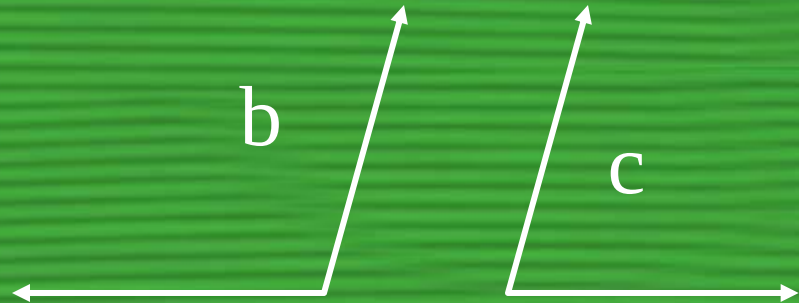
Angles can't be negative. Think about it!

Supplementary Angles

- Angles whose sum is 180° .



$$m\angle k + m\angle t = 180^\circ$$

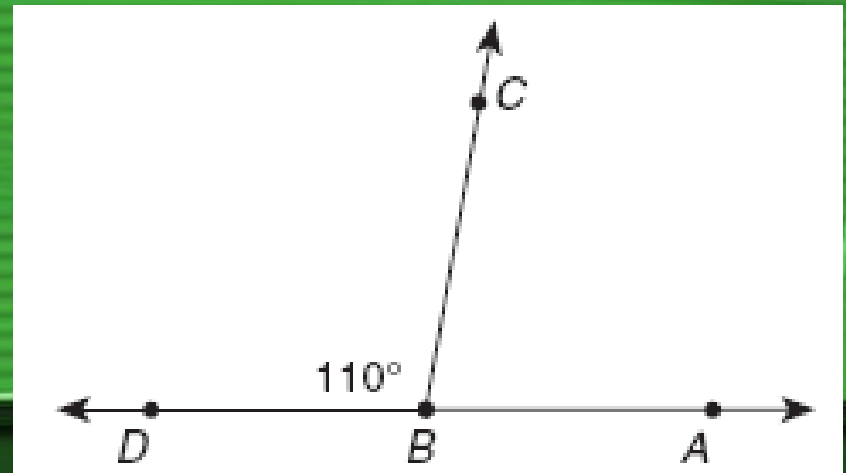


$$m\angle b + m\angle c = 180^\circ$$

Supplementary angles may not be adjacent.

Supplementary angles need to add up to 180 because that is the definition.

Example: To find the supplement, $180 - 110 = 70$



Find the supplement of the following...

1) 18° 162°

2) 104° 76°

3) 158° 22°

4) 75° 105°

Lesson Quiz

1. Name two lines in the figure.

Possible answer: $\overleftrightarrow{AD}$ and $\overleftrightarrow{BE}$

2. Name a right angle in the figure.

Possible answer: $\angle AGF$

3. Name a pair of complementary angles.

Possible answer: $\angle 1$ and $\angle 2$

