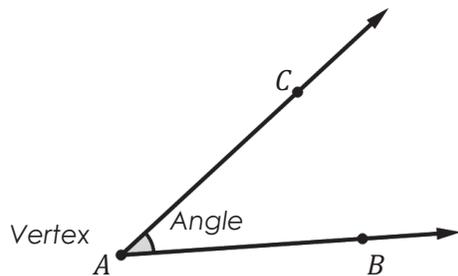


Section 3 – Topic 1
Introduction to Angles – Part 1

Consider the figure of angle A below.



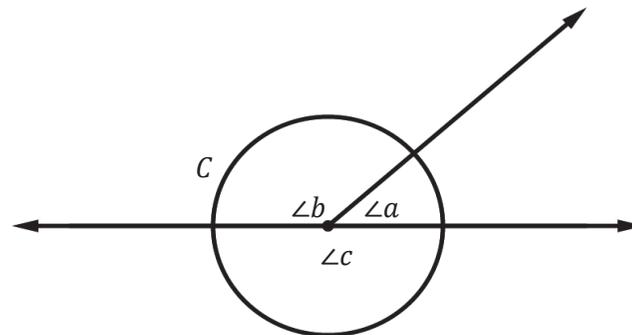
What observations can you make about angle A ?

How else do you think we can name angle A ?

Why do you think we draw an arc to show angle A ?

Like circles, angles are measured in _____ since they measure the amount of rotation around the center.

Consider the figure below.



Use the figure to answer the following questions.

What is the measure of circle C ?

What is the measure of $\angle a + \angle b + \angle c$?

How many degrees is half of a circle?

What is the measure of $\angle a + \angle b$?

Two positive angles that form a straight line together are called _____ angles.

➤ When added together, the measures of these angles total _____ degrees, forming a _____ pair.

Draw an example of **supplementary angles** that form a **linear pair**.

A quarter-circle is a _____ angle.

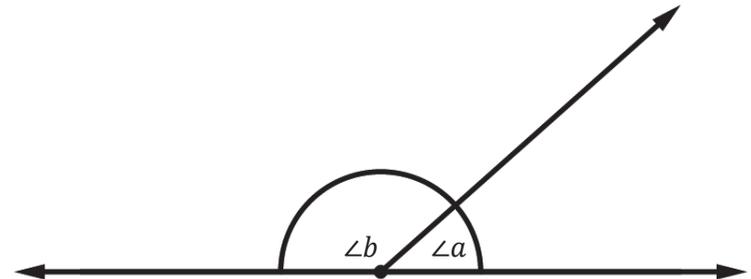
How many degrees are in a right angle?

Two positive angles that together form a right angle are called _____ angles.

Draw an example of **complementary angles**.

Let's Practice!

1. In the figure below, $m\angle a = 7x + 5$ and $m\angle b = 28x$. The angles are supplementary.

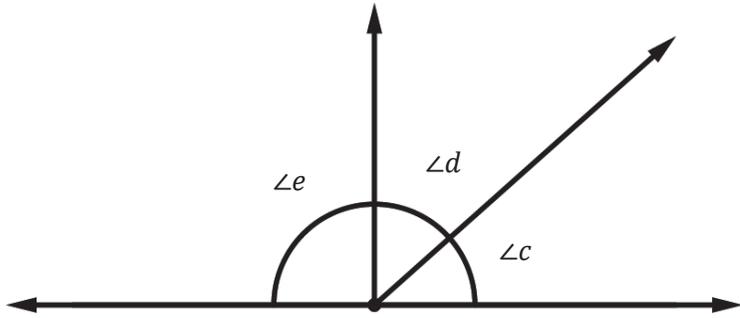


Find the value of x and the measure of $\angle a$ and $\angle b$ in degrees.

STUDY EDGE TIP

When we refer to the angle as $\angle ABC$, we mean the actual angle object. If we want to talk about the size or the measure of the angle in degrees, we often write it as $m\angle ABC$.

2. In the figure below, $m\angle c = 9x - 3$ and $m\angle d = 8x + 9$.

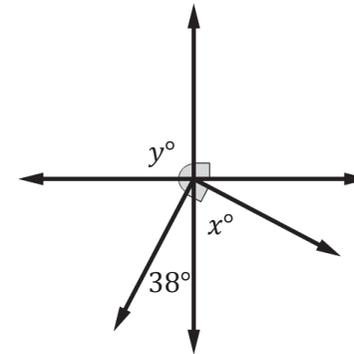


- a. If $x = 5$, are $\angle c$ and $\angle d$ complementary? Justify your answer.
- b. If $\angle c$, $\angle d$, and $\angle e$ form half a circle, then what is the measure of $\angle e$ in degrees?

Try It!

3. Angle A is 20 degrees larger than angle B . If A and B are complementary, what is the measure of angle A ?

4. Consider the figure below.

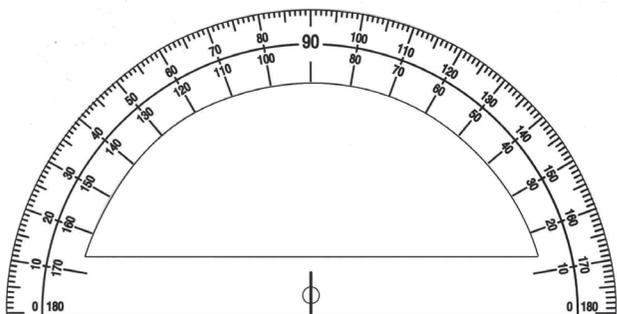


If the angle with value of y° stretches from the positive y -axis to the ray that makes the 38° angle, set up and solve an appropriate equation for x and y .

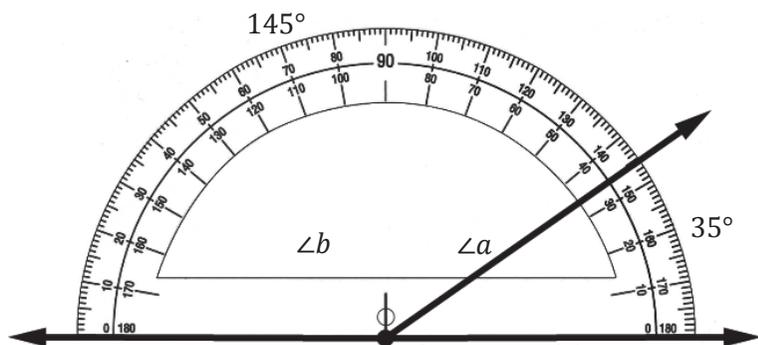
Section 3 – Topic 2 Introduction to Angles – Part 2

Measuring and classifying angles:

➤ We often use a _____ to measure angles.



To measure an angle, we line up the central mark on the base of the **protractor** with the vertex of the angle we want to measure.

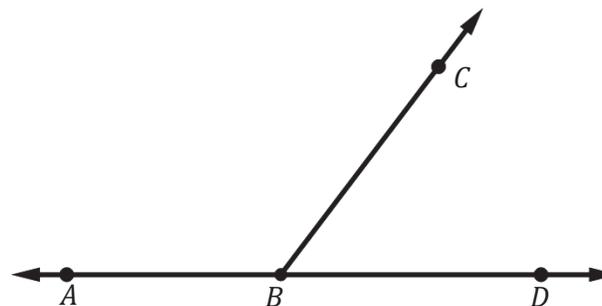


TAKE NOTE!
Postulates &
Theorems

The Protractor Postulate

The measure of the angle is the absolute value of the difference of the real numbers paired with the sides of the angle, because the parts of angles formed by rays between the sides of a linear pair add to the whole, 180° .

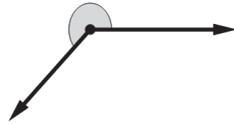
Label and measure the angles in the following figure.



Match each of the following words to the most appropriate figure represented below. Write your answer in the space provided below each figure.

Acute	Obtuse	Right	Straight	Reflex
-------	--------	-------	----------	--------







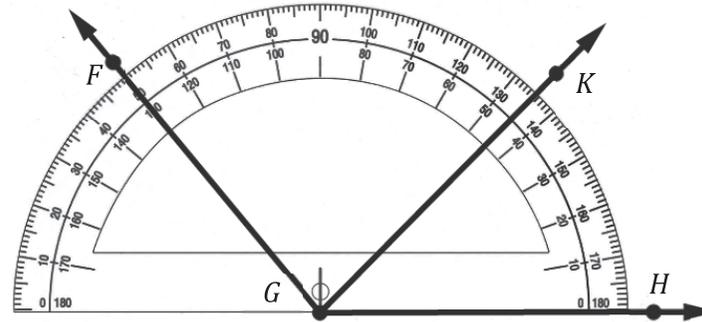




- An angle that measures less than 90° is _____.
- An angle that measures greater than 90° but less than 180° is _____.
- An angle that measures exactly 90° is _____.
- An angle of exactly 180° is _____.
- An angle greater than 180° is called a _____ angle.

Let's Practice!

- Use the figure below to fill in the blanks that define angles $\angle FGK$, $\angle FGH$, and $\angle KGH$ as acute, obtuse, right, or straight.

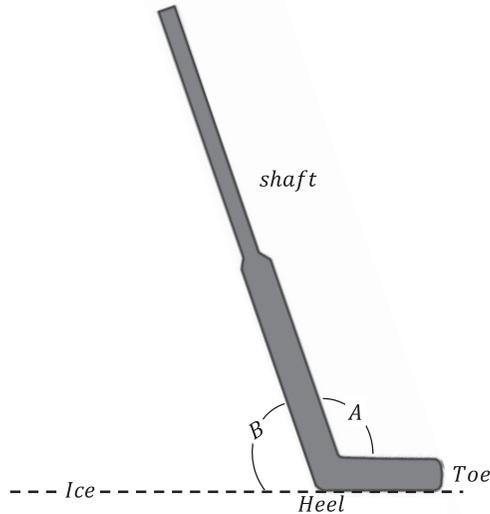


- $\angle FGK$ is a(n) _____ angle.
- $\angle FGH$ is a(n) _____ angle.
- $\angle KGH$ is a(n) _____ angle.



Try It!

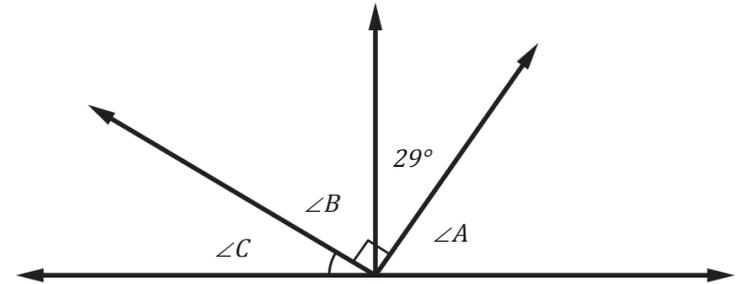
2. A hockey stick comes into contact with the ice in such a way that the shaft makes an angle with the ice, labeled as angle B in the figure below. The angle between the shaft and the toe of the hockey stick is labeled as A .



- a. Determine the type of angle that is between the ice and the shaft. Is it acute, right, obtuse, or straight?
- b. Determine the type of angle that is between the shaft and the toe. Is it acute, right, obtuse, or straight?

BEAT THE TEST!

1. Consider the figure below.



If $\angle B$ and $\angle C$ are complementary, then:

The measure of $\angle A$ is .

The sum of $m\angle A$ and $m\angle B$ is .

The sum of $m\angle A$, $m\angle B$, and $m\angle C$ is .

If $m\angle Z = m\angle A + m\angle C$, then $\angle Z$ is

- acute
- obtuse
- right
- straight