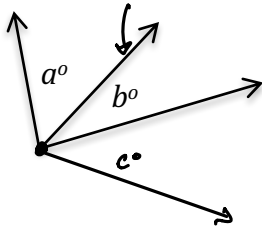
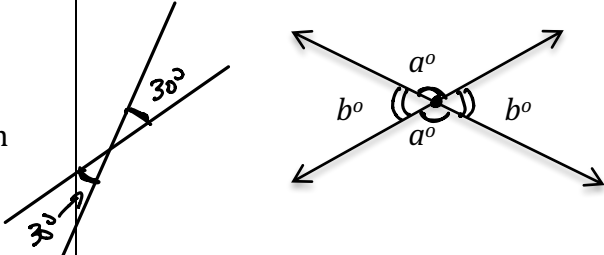
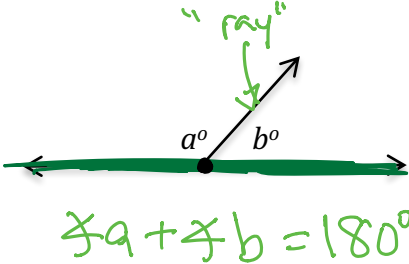
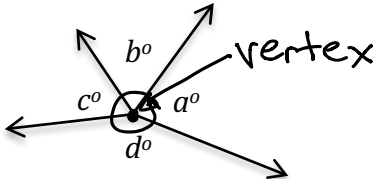
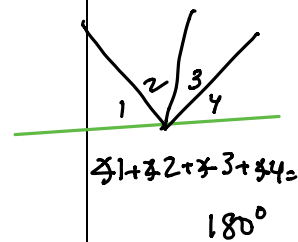


LEARNING OBJECTIVE: We will identify complementary and supplementary angles and solve problems involving missing angle measurements. (G7M6L1)

ACTIVATING PRIOR KNOWLEDGE

We know basic definitions of angles.

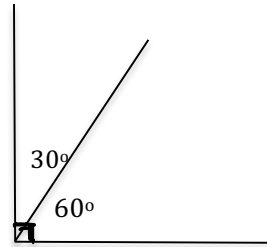
<p>Adjacent Angles: Two angles that share a common ray. next to each other!</p>	
<p>OPPOSITE ANGLES Vertical Angles: Two non-adjacent angles formed when two lines intersect.</p>	
<p>Angles on a Line: When a ray extends from a straight line. Angles on a line add to 180°. Straight line = 180°</p>	
<p>Angles on a Point: When 3 or more rays extend from the same vertex, the sum of all measurements equals 360°.</p>	



vertex is 1
Vertices is more than 1 (plural)

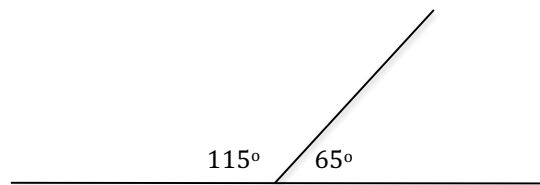
CONCEPT DEVELOPMENT

Complementary Angles: If the sum of the measurements of two angles is 90° , then the angles are called complementary.
(these angles form a right angle)



Complementary = right

Supplementary Angles: If the sum of the measurements of two angles is 180° , then the angles are called supplementary.
(these angles form a straight line)



supplementary = straight line

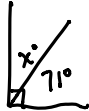
GUIDED PRACTICE

Steps for Finding Missing Angle Measurements

1. Identify if you're dealing complementary (add to 90°) or supplementary (adds to 180°) angles.
2. Define your variables.
3. Create an equation based on the problem equaling either 90 (complementary) or 180 (supplementary).
4. Solve for your variable.
5. Find the missing angle measurements.

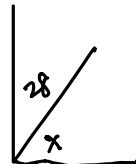
<p style="text-align: center;">$z^\circ + y^\circ = 90$</p> <div style="margin-top: 10px;"> $\begin{array}{r} 53 + z = 90 \\ -53 \quad -53 \\ \hline z = 37 \end{array}$ $\begin{array}{r} 53 + x = 90 \\ -53 \quad -53 \\ \hline x = 37 \end{array}$ </div>	<p style="text-align: center;"><i>"Angles on a line"</i></p> <div style="margin-top: 10px;"> $\begin{array}{r} 43 + 90 + x = 180 \\ 133 + x = 180 \\ -133 \quad -133 \\ \hline x = 47 \end{array}$ </div>
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In a pair of **complementary angles**, the measurement of the larger angle is 71° . What is the measurement of the smaller angle?



$$\begin{array}{r} 71 + x = 90 \\ -71 \quad -71 \\ \hline x = 19^\circ \end{array}$$

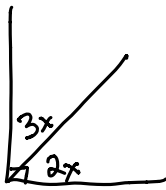
In a pair of complementary angles, the measurement of one angle is 28° . What is the measurement of the other angle?



$$\begin{array}{r} x + 28 = 90 \\ -28 \quad -28 \\ \hline x = 62^\circ \end{array}$$

In a pair of **complementary angles**, one angle is twice a certain number. The other angle is three times that same number. What are the measurements of each angle?

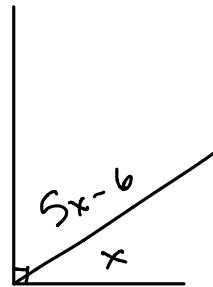
$x =$ "a certain number"



$$\begin{array}{r} 2x + 3x = 90 \\ \hline 5x = 90 \\ \frac{5x}{5} = \frac{90}{5} \\ \hline x = 18 \end{array}$$

One angle is 36° and the other is 54°

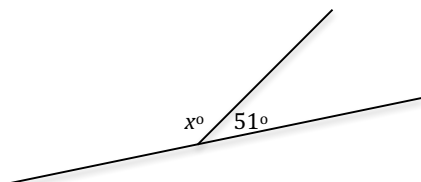
The **complement** of an angle is 6 less than 5 times the measurement of the angle. Find the measurements of the two angles.



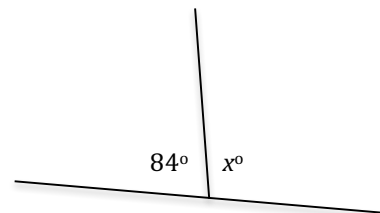
$$\begin{array}{r} x + 5x - 6 = 90 \\ \hline 6x - 6 = 90 \\ +6 \quad +6 \\ \hline 6x = 96 \\ \frac{6x}{6} = \frac{96}{6} \\ \hline x = 16 \end{array}$$

The measurement of the 2 angles are 16° & 74°

SUPPLEMENTARY!



$$\begin{array}{r} x + 51 = 180 \\ -51 \quad -51 \\ \hline x = 129^\circ \end{array}$$



$$\begin{array}{r} x + 84 = 180 \\ -84 \quad -84 \\ \hline x = 96^\circ \end{array}$$

The supplement of an angle is 38 more than the angle. What are the measurements of the two angles?

$x+38/x$

The two angle are 71° & 109°

$$x+x+38=180$$

$$2x+38=180$$

$$\begin{array}{r} 2x+38 \\ -38 \\ \hline 2x=142 \\ \frac{2x}{2}=\frac{142}{2} \\ x=71 \end{array}$$

The measurement of the supplement of an angle is 20 more than half the angle. What are measurements of the angle and its supplement?

$\frac{1}{2}x+20/x$

One angle is $106\frac{2}{3}^\circ$
The other is $73\frac{1}{3}^\circ$

$$\frac{1}{2}x+20+x=180$$

$$\frac{3}{2}x+20=180$$

$$\begin{array}{r} \frac{3}{2}x+20 \\ -20 \\ \hline \frac{3}{2}(\frac{2}{3}x) = \frac{160}{3} \\ x = \frac{320}{3} = 106\frac{2}{3} \end{array}$$

The measurement of two supplementary angles have the ratio of 4:5. Find the two angles.

$5x/4x$

One angle is 80° . The other is 100°

$$5x+4x=180$$

$$\frac{9x}{9}=\frac{180}{9}$$

$$x=20$$

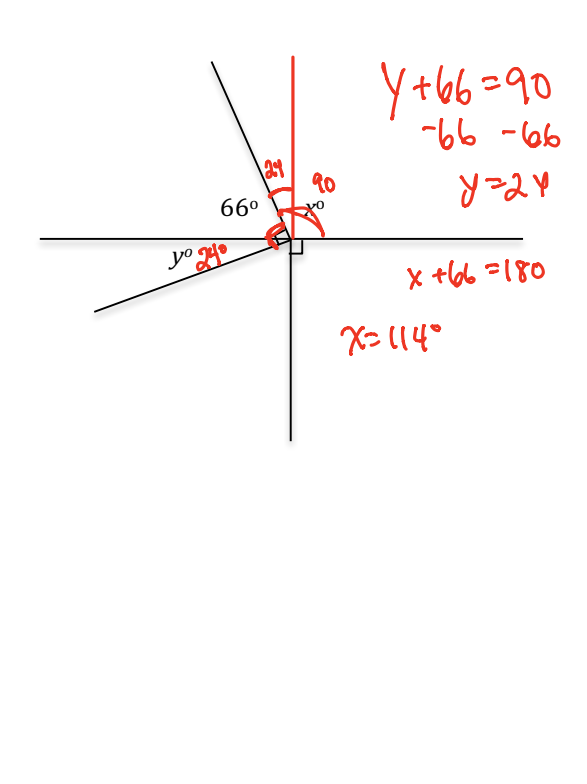
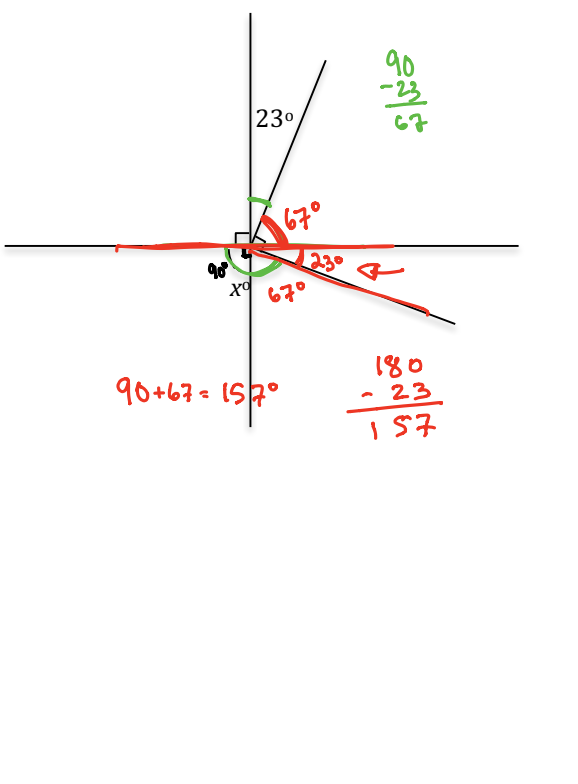
In a pair of supplementary angles, one angle is 29 less than 10 times the other angle. What are the measurements of the two angles?

$10x-29/x$

One angle is 19°
The other angle is 161°

$$10x-29+x=180$$

$$11x-29=180$$

$$\begin{array}{r} 11x-29 \\ +29 \\ \hline 11x=209 \\ \frac{11x}{11}=\frac{209}{11} \\ x=19 \end{array}$$


Name: _____

Math 7.1

Mr. Rogove

Date: _____

INDEPENDENT PRACTICE

Lesson 1 problem set can be independent practice or HW...or Kuta handout for Homework/IP.

CLOSURE

Exit ticket lesson 1.

NOTES

This corresponds to lesson 1, Module 6, Grade 7.

