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math instruction
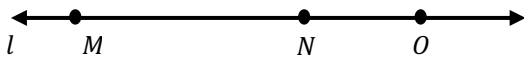
Lesson 1.03 Types of Angles

Students will be able to:

- ▪ <u>Content Objective:</u> Define acute, obtuse, straight, right, and reflex angles.

- ▪ <u>Language Objective:</u> Discuss how to correctly name and solve for angles.

🏋 Warm Up

1. Given line l, points $M, N,$ and O are collinear.

l M N O

Identify all rays shown in the illustration above using symbolic notation.

2. Solve the equation below for x.
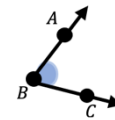
$$3x + 12 = -2x + 22$$

📋 Vocabulary Review

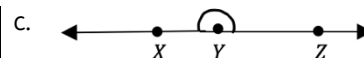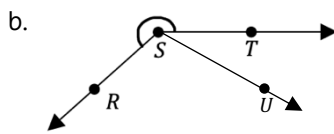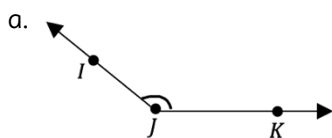| Angle |
| --- |
| ▪ The object formed by two _____ that share the same starting point or _____.

 ▪ The **measurement of an angle** is the amount of _____necessary to rotate one ray about a vertex to land on top of the other ray.

 ▪ An angle can be named using a <u>single point</u> (the vertex) or using <u>three points</u> such that the vertex **always** goes in the middle → $\angle B$ or $\angle ABC$. |

🔵 Graphic Organizer

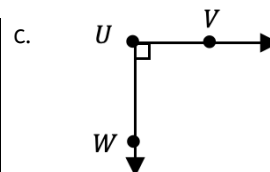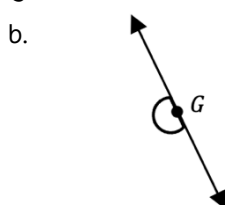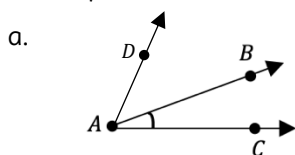| Types of Angles				
Acute	**Obtuse**	**Reflex**	**Right**	**Straight**
An angle that has a measure between 0° and 90°.	An angle that has a measure between 90° and 180°.	An angle that has a measure between 180° and 360°.	An angle that has a measure of 90° and is formed by **perpendicular rays.**	An angle that measures 180° (straight line).
			Represents <u>one-fourth</u> of a full rotation	Represents <u>one-half</u> of a full rotation

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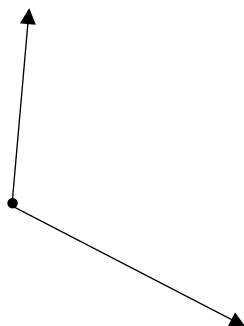## Skill 1: Identifying Angles

Correctly **name** and **classify** each angle shown below.

a.

b.

c.

Exercise 1: Identifying Angles

Correctly **name** and **classify** each angle shown below.

a.

b.

c.

Skill 2: Measuring Angles

Using a protractor, measure the **non-reflex** angle below, then identify the type of angle.

**Steps for using a protractor:**

1. Place the midpoint of the protractor on the vertex of the angle.

2. Line up the 0° line (baseline) with one of the rays that make up the angle.

3. Read the number (degrees) that the other ray lines up with.

Exercise 2: Measuring Angles

Using a protractor, measure the **non-reflex** angle below, then identify the type of angle.
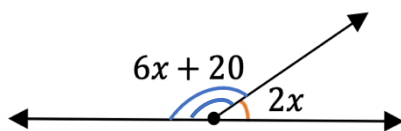
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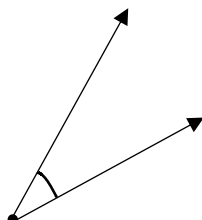
* Similarly with marking congruent lengths, we can mark congruent angles. *

Congruent angles	Non-Congruent Angles
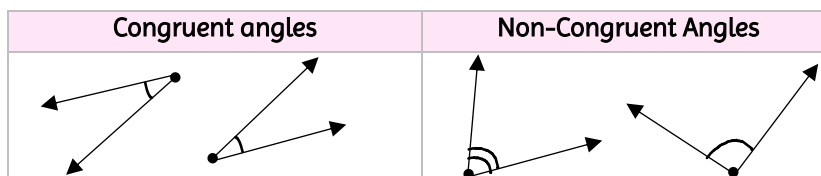
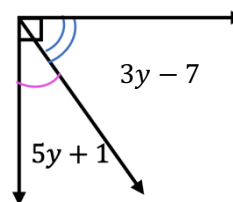### Skill 3: Angles & Algebra

Solve for the missing variable using your knowledge of angles. Angles are not drawn to sca.

$6x + 20$
$2x$

Exercise 3: Angles & Algebra

Solve for the missing variable using your knowledge of angles. Angle is not drawn to scale.

$3y - 7$
$5y + 1$

Talk it Out

Use the diagram below to complete the following.

a. Is $\angle C$ a name for a distinct angle? Explain.

z
X
B
C

b. Using a protractor, what is the measure of $\angle XCZ$?

c. What is the measure of $\angle XCB$?

d. Based on your answers to parts b. and c., what is the measure of $\angle BCZ$? Show calculations that lead to your answer.
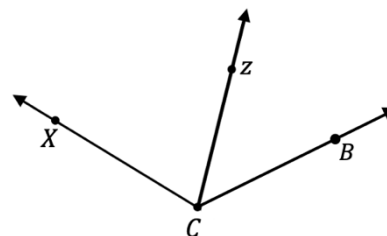
Check Point

The diagram below is not drawn to scale. Solve for x.
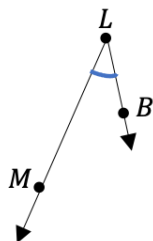
$3x + 5$
$x - 1$

Problem Set
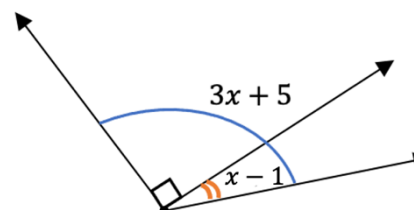
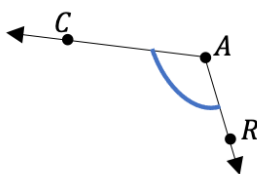Name: _____

1. Correctly **name** and **classify** each angle shown below.

a.

L
B
M

b.

C
A
R

c.

N
A
P

d.

A
T
B

e.

T
I
L

f.

C
A
T
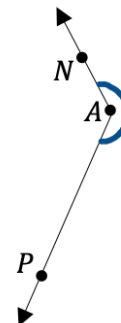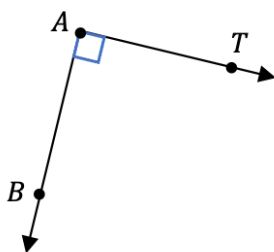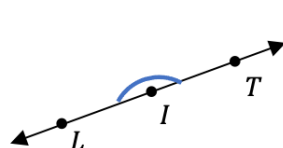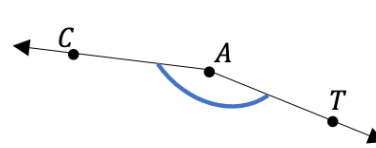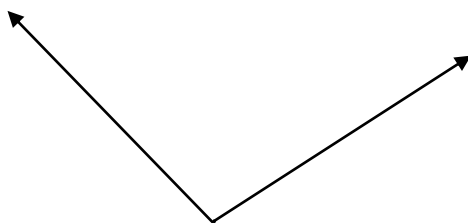
2. Using a protractor, measure the **non-reflex** angle below, then **identify** the type of angle.

3. The diagram below is not drawn to scale.

a. Write an equation that can be used to solve for b, then solve.

R
$\frac{1}{2}b + 5$
A
$70°$
$2b$
E
C

b. What is the measure of $\angle ARE$?

c. What is the measure of $\angle ARC$?