

Coffman Blizzard Bag #1

7th Grade Math

Learning Targets

- I can use complementary, supplementary, vertical, and adjacent angles to find an unknown angle in a figure.

Directions

Please use your notes and study guide papers that I have attached to help you complete the WKST on missing angles. If you are unable to print the papers, please use a separate sheet of paper to write the missing angle.

Standards

7.G.5

Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in figure.

LESSON
10.2

Name _____ Date _____

Study Guide

For use with pages 479–483

GOAL Identify special pairs of angles and types of lines.

VOCABULARY

Adjacent angles Two angles that share a common side and a vertex and do not overlap are called *adjacent angles*.

Vertical angles When two lines meet at a point, the angles that are opposite each other are called *vertical angles*. Vertical angles are *congruent angles* because they have the same measure.

A **plane** is a flat surface that extends without end.

Intersecting lines meet at a point.

Parallel lines are two lines in the same plane that do not intersect.

Perpendicular lines intersect to form four right angles.

Corresponding angles Angles that occupy corresponding positions when a line intersects two other lines are called *corresponding angles*. When a line intersects two parallel lines, corresponding angles are congruent.

Lesson 10.2

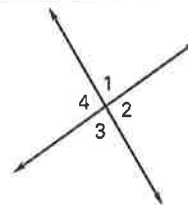
EXAMPLE 1 Identifying Adjacent Angles

Name all pairs of adjacent, supplementary angles.

Solution

Adjacent, supplementary angles:

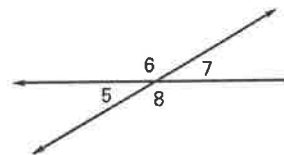
- | | |
|---------------------------|---------------------------|
| $\angle 1$ and $\angle 2$ | $\angle 2$ and $\angle 3$ |
| $\angle 3$ and $\angle 4$ | $\angle 1$ and $\angle 4$ |



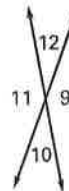
Exercises for Example 1

Refer to the diagram.

- Name all pairs of adjacent, supplementary angles in the diagram at the right.



- Name all angles that are adjacent, supplementary angles to $\angle 10$ in the diagram at the right.



Study Guide

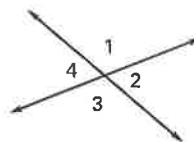
For use with pages 479–483

EXAMPLE 2 Using Vertical Angles

Given that $m\angle 2 = 62^\circ$, find $m\angle 4$.

Solution

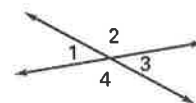
Because $\angle 2$ and $\angle 4$ are vertical angles, they are congruent. So, $m\angle 2 = m\angle 4 = 62^\circ$.



Exercises for Example 2

Use the diagram to find the indicated angle measure.

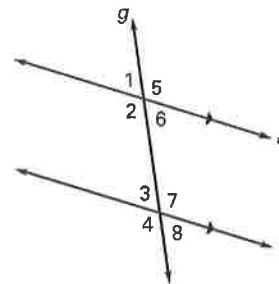
3. Given that $m\angle 1 = 38^\circ$, find $m\angle 3$.
4. Given that $m\angle 2 = 142^\circ$, find $m\angle 4$.



EXAMPLE 3 Using Corresponding Angles

Use the diagram at the right.

- a. Name two lines that are parallel and two lines that intersect.
- b. Given that $m\angle 4 = 115^\circ$, find $m\angle 5$.



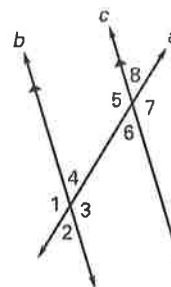
Solution

- a. Line e is parallel to line f . Line g intersects both line e and line f .
- b. Because $\angle 4$ and $\angle 7$ are vertical angles, $m\angle 4 = m\angle 7 = 115^\circ$.
Because line e and line f are parallel lines, $\angle 5$ and $\angle 7$ are congruent corresponding angles. So, $m\angle 5 = m\angle 7 = 115^\circ$.

Exercises for Example 3

Use the diagram at the right.

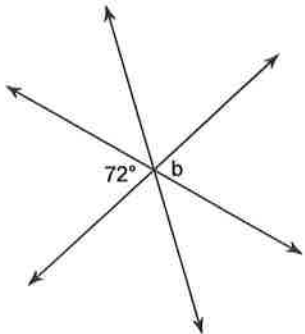
5. Name two lines that are parallel and two lines that intersect.
6. Given that $m\angle 2 = 48^\circ$, find $m\angle 8$.



Blizzard Bag #1 Angle Measurements

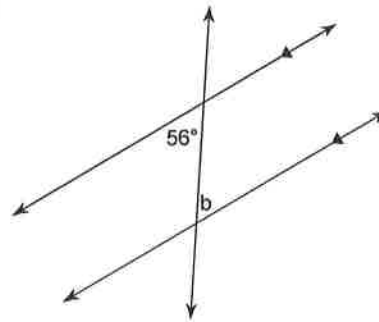
Find the measure of angle b.

1)



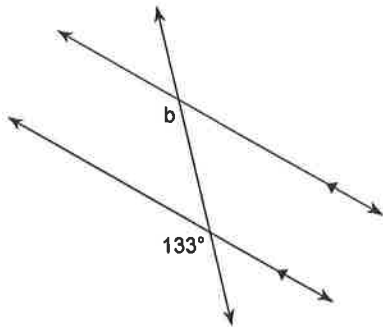
- A) 122°
- B) 18°
- C) 72°
- D) 162°

2)



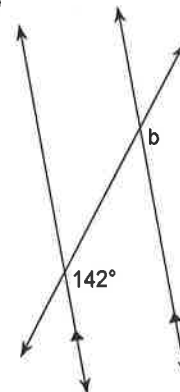
- A) 65°
- B) 34°
- C) 56°
- D) 146°

3)



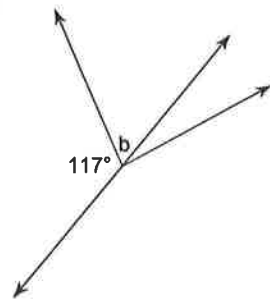
- A) 47°
- B) 133°
- C) 43°
- D) 165°

4)



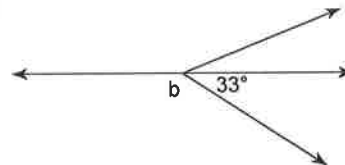
- A) 24°
- B) 142°
- C) 66°
- D) 114°

5)



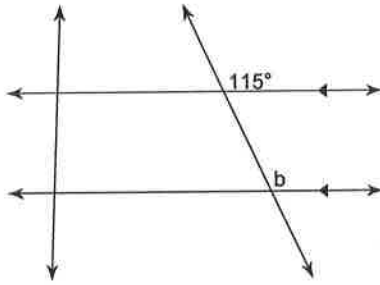
- A) 27°
- B) 63°
- C) 117°
- D) 153°

6)



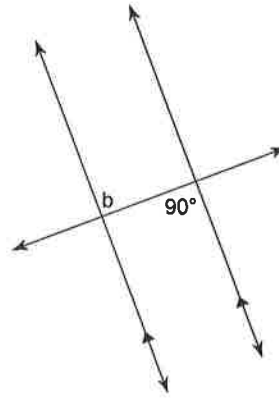
- A) 147°
- B) 123°
- C) 33°
- D) 57°

7)



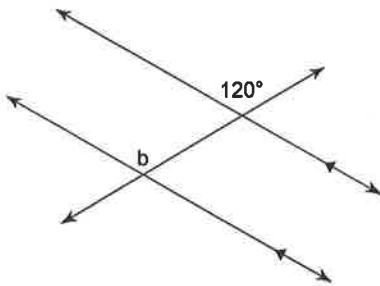
- A) 25°
- B) 65°
- C) 115°
- D) 126°

8)



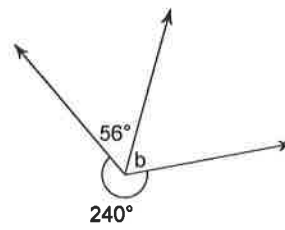
- A) 90°
- B) 0°
- C) 83°
- D) 180°

9)



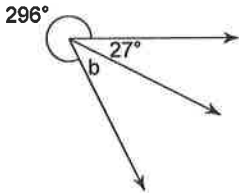
- A) 31°
- B) 120°
- C) 121°
- D) 60°

10)



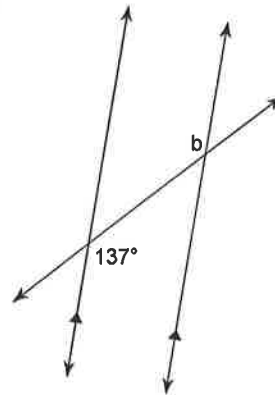
- A) 2°
- B) 26°
- C) 64°
- D) 88°

11)



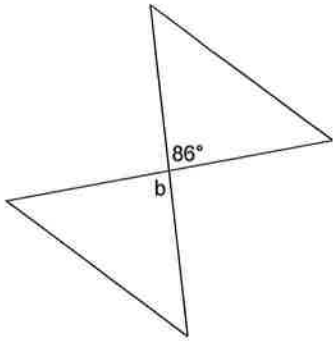
- A) 143°
- B) 22°
- C) 112°
- D) 37°

12)



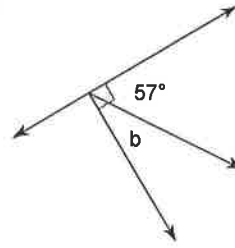
- A) 43°
- B) 47°
- C) 106°
- D) 137°

13)



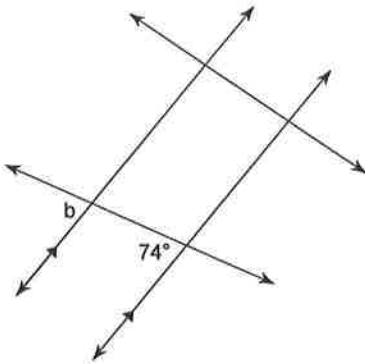
- A) 126°
- B) 36°
- C) 54°
- D) 86°

14)



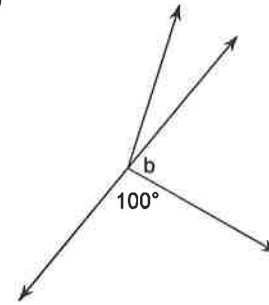
- A) 17°
- B) 33°
- C) 147°
- D) 163°

15)



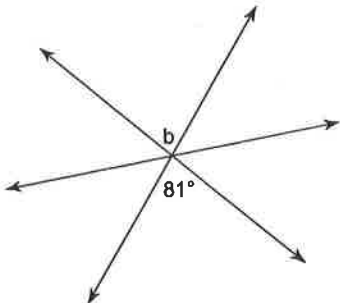
- A) 16°
- B) 106°
- C) 40°
- D) 74°

16)



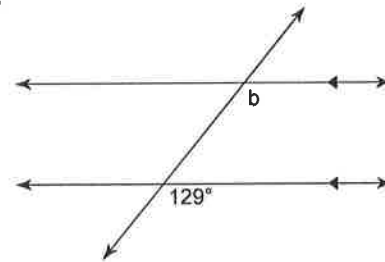
- A) 100°
- B) 10°
- C) 80°
- D) 170°

17)



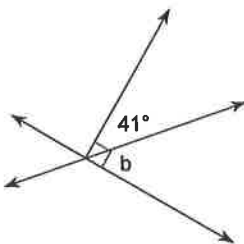
- A) 171°
- B) 81°
- C) 9°
- D) 99°

18)



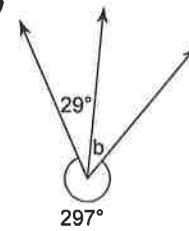
- A) 129°
- B) 51°
- C) 39°
- D) 141°

19)



- A) 49°
- B) 41°
- C) 131°
- D) 139°

20)



- A) 146°
- B) 124°
- C) 56°
- D) 34°