

# Unit 7: Geometry

*I can use angle relationships to solve problems.*

## Angle Relationships

Write one of the following terms next to the appropriate definition below.

Complementary Angles

Supplementary Angles

Vertical Angles

Adjacent Angles

Complementary - Two adjacent angles whose sum is 90 degrees

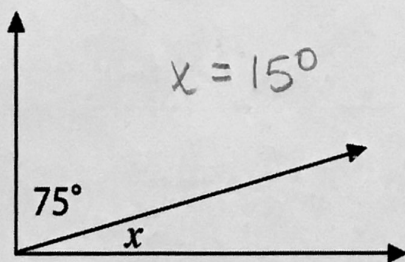
Adjacent - Two angles directly next to each other; they share a vertex and a side

Supplementary - Two adjacent angles whose sum is 180 degrees

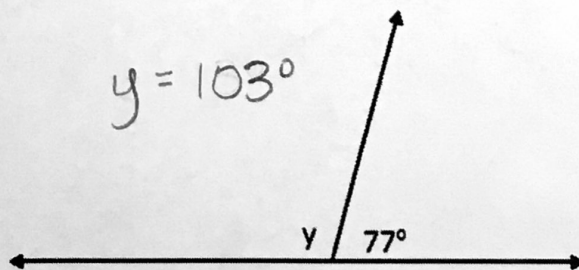
Vertical - Opposite angles formed by two intersecting lines; they are congruent

## Examples:

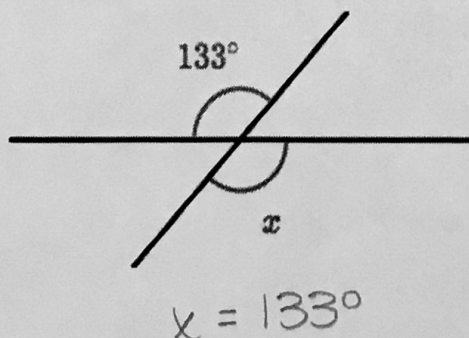
1.) What is the measurement of  $x$ ?



2.) What is the measurement of  $y$ ?



3.) What is the measurement of  $x$ ?



4a) What are two pairs of adjacent angles?



Adjacent:  $1+2, 2+3, 3+4, 4+1$

Vertical:  $1+3, 2+4$

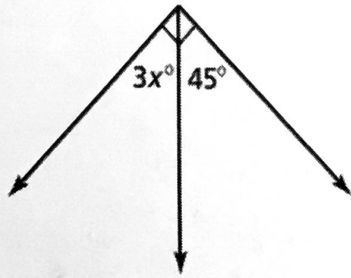
4b) What are two pairs of vertical angles?

## Problem Solving with Angles

Directions: Find the value of  $x$  in each figure below.

### Level One

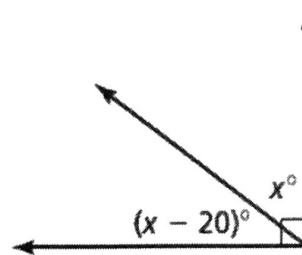
1.)



$$3x + 45 = 90$$

$$3x = 45 \quad x = 15$$

2.)



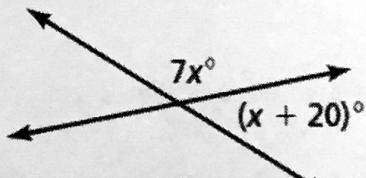
$$x + x - 20 = 90$$

$$2x - 20 = 90$$

$$2x = 110$$

$$x = 55$$

3.)

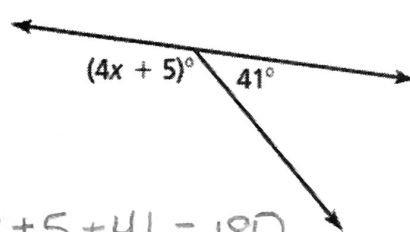


$$7x + x + 20 = 180$$

$$8x + 20 = 180$$

$$8x = 160 \quad x = 20$$

4.)



$$4x + 5 + 41 = 180$$

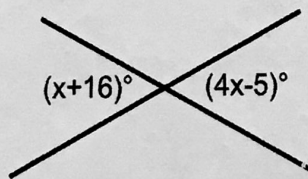
$$4x + 46 = 180$$

$$4x = 134$$

$$x = 33.5$$

### Level Two

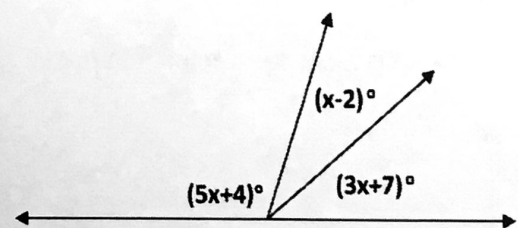
5.)



$$x + 16 = 4x - 5$$

$$21 = 3x \quad x = 7$$

6.)



$$5x + 4 + x - 2 + 3x + 7 = 180$$

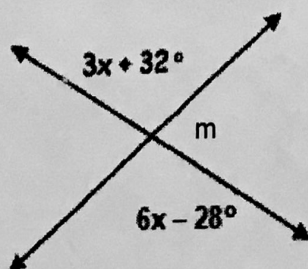
$$9x + 9 = 180$$

$$9x = 171$$

$$x = 19$$

### Level Three

7.)



Part 1: What is the value of  $x$ ?

$$3x + 32 = 6x - 28$$

$$60 = 3x \quad x = 20$$

Part 2: What is the measure of angle  $m$ ?

$$3(20) + 32 = 92$$

$$m + 92 = 180$$

$$m = 88^\circ$$