Name: _____ Date: _____ Period: _____

1. Consider the equation: $y = \frac{4}{3}x - 1$.

    a. What is the slope of the graph of this equation? _____

    b. What is the slope of the lines parallel to the graph of this equation? _____

    c. What is the slope of the lines perpendicular to the graph of this equation? _____

2. Consider the equation: 2x + 8y = 12

    a. What is the slope of the graph of this equation? _____

    b. What is the slope of the lines parallel to the graph of this equation? _____

    c. What is the slope of the lines perpendicular to the graph of this equation? _____

3. Consider the equation: 6x – 3y = 12

    a. What is the slope of the graph of this equation? _____

    b. What is the slope of the lines parallel to the graph of this equation? _____

    c. What is the slope of the lines perpendicular to the graph of this equation? _____

4. Consider the equation: 12x + 4y = -16

    a. What is the slope of the graph of this equation? _____

    b. What is the slope of the lines parallel to the graph of this equation? _____

    c. What is the slope of the lines perpendicular to the graph of this equation? _____

5. Complete this sentence: "When two lines are parallel, their _____ are _____."

6. Describe the relationship between the slopes of two perpendicular lines: _____

_____

State whether each pair of equations has graphs that are parallel, perpendicular, or neither. Be sure to show your work!

1.
$$y = \frac{2}{3}x + 6$$
$$y = -\frac{2}{3}x + 6$$

2.
$$y = \frac{3}{2}x + 4$$
$$y = \frac{3}{2}x - 4$$

3.
$$y = \frac{3}{4}x + 2$$
$$y = -\frac{4}{3}x - 2$$

4.
$$y = \frac{3}{5}x + 8$$
$$5x + 3y = 18$$

5.
$$y = 2x - 3$$
$$x + 2y = 3$$

6.
$$y = 2x - 3$$
$$-2x - y = 6$$

7.
$$y = -\frac{8}{3}x - 6$$
$$8x + 3y = 42$$

8.
$$y = -\frac{8}{3}x - 6$$
$$3x - 8y = 40$$

9.
$$y = -\frac{8}{3}x - 6$$
$$6x - 16y = 48$$

10. $3x - 7y = 14$
$3x - 7y = -21$

11. $3x - 7y = 14$
$7x + 3y = 21$

12. $3x - 7y = 14$
$-3x - 7y = 21$

Slopes of Parallel and Perpendicular Lines