Formulas for the Day:

$$Slope: m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$Slope - intercept\ form: y = mx + b,\ where\ b\ is\ the\ y - intercept$$

$$Standard\ form: Ax + By = C,\ where\ A, B, and\ C\ are\ intergers$$

Find the **slope** between the two points given. Leave your answers in **simplified fractional** form.

1. (6,-11) and (-16,-13)

2. (14,9) and (7,-12)

3. (6,5) and (16, -10)

4. (16, -7) and (8, 11)

5. (-8, 1) and (-8, 8)

6. (-7,-16) and (11,-16)

Parallel Lines have the _SAME_ Slopes.

Perpendicular Lines have _Opposite Reciprocal_ Slopes.

Quick test for perpendicular lines: $m_1 \bullet m_2 = -1$

Find the **slope** of the lines that would be parallel and perpendicular to the given points.

7. (-2, 6) and (-13, -16)   Slope of parallel line: _____

Slope of perpendicular line: _____

8. (9, 22) and (-12, 7)   Slope of parallel line: _____

Slope of perpendicular line: _____

9. (6, -5) and (2, -5)   Slope of parallel line: _____

Slope of perpendicular line: _____

10. (16, -7) and (16, 11)   Slope of parallel line: _____

Slope of perpendicular line: _____

11. Line *m* is parallel to the line $y = -\frac{1}{2}x + 2$ and contains the point (–6,1). What is the equation of Line *m* in slope-intercept form?

12. Write an equation to the line parallel to $y = 3x - 9$ and that passes through the point (2,1).

13. Write the equation of the line that passes through (-3,-2) and is parallel to the equation $2x - 8y = 16$.

Use the relationship between slopes of **perpendicular lines** to answer the following questions.

14. Line *m* has the equation, $y = \frac{5}{4}x + 1$. What is the slope of a line perpendicular to Line *m*?

15. Write the equation of the line perpendicular to $y = \frac{5}{4}x + 1$ and whose y-intercept is 3.

16. Write the equation of the line perpendicular to $y = -2x + 5$ whose y-intercept is 12.

17. Write the equation of the line perpendicular to $y = \frac{1}{5}x - 6$ which passes through the point (1, –3).

18. The line perpendicular to $2y = x + 5$ that passes through (2,1).

19. The line perpendicular to $3x + y = 8$ that passes through (0,-2)