5.5: Write Equations of Parallel and Perpendicular Lines

Goals: *Write an equation in slope – intercept of parallel lines
*Write an equation in slope – intercept form of perpendicular lines

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Parallel Lines: **Symbol:**

****RECALL****

Write the equation of the line with the given information:

Ex: passes through (–3, –5) $\|\|$ to $y = 3x - 1$

Given Equation	**Answer Equation**
What information do you know from the given equation?	What information can you infer about the answer equation as a result?

Ex: passes through (–2, 11) $\|\|$ to $y = -x + 5$

Ex: passes through (–3, 3) $\|\|$ to $y + 2x = 1$

Perpendicular Lines: **Symbol:** $\perp$

****IMPORTANT****

Determine which lines, if any, are parallel or perpendicular:

1.
a. $y = 5x - 3$ **b.** $x + 5y = 2$ **c.** $-10y - 2x = 0$

2.
a. $y = -3x + 1$ **b.** $-x + 3y = 1$ **c.** $2x - 6y = 4$

3.
a. $2x + 6y = -3$ **b.** $y = 3x - 8$ **c.** $-1.5y + 4.5x = 6$

Write the equation of the line with the given information:

Ex: passes through $(4, -5)$ $\perp$ to $y = 2x + 3$

Given Equation	**Answer Equation**
What information do you know from the given equation?	What information can you infer about the answer equation as a result?

Ex: passes through $(4, 3)$ $\perp$ $y = 4x - 7$

Ex: passes through $(4, -2)$ $\perp$ $y - 4x = 2$