**More Parallel & Perpendicular Lines**

**Parallel lines** have the same slope, but different *y*-intercepts.

**Perpendicular lines** have slopes that are opposite reciprocals.

**Horizontal lines** have slopes equal to zero.

**Vertical lines** have slopes that are undefined.

1. Find the slope of the line passing through the two points and describe the line as increasing, decreasing, horizontal, or vertical.
2. (2, 1) ; (4, 5) b) (-1, 0) ; (3, -5)

 c) (2, 1) ; (-3, 1) d) (-1, 2) ; (-1, -5)

1. Determine whether the graphs of each pair of equations areparallel, perpendicular, or neither.
2. $y=3x+4; y=3x+7$ b) $y=-4x+1; y=\frac{1}{4}x+3$

c) $y=2x-5; y=5x-5$ d) $y=-\frac{1}{3}x+2$; $y=3x-5$

e) $y= \frac{3}{5}x-3$; $y= -\frac{3}{5}x-2$ f) $y=4; y=17$

g) $y=7x+2; y= \frac{-1}{7}x+ \frac{8}{7}$ h) $y=1; x=-4$

1. Find an equation of a line parallel to and perpendicular to:
2. *y* = –5*x + 4* b) $y= \frac{2}{3}x-7$

Parallel: Parallel:

Perpendicular: Perpendicular:

1. *y* = –2

Parallel:

 Perpendicular:

1. Regina starts driving 3 miles northwest of Norwich. She is heading toward Hartford along Route 2. At the same time Dave starts driving 1 mile northwest of Norwich also heading toward Hartford along Route 2. Both Regina and Dave drive at 60 miles per hour. Let miles from Norwich be the dependent variable.
2. Write a distance-time function for Regina.
3. Write a distance-time function for Dave.
4. If graphed, would the lines for these equations be parallel, perpendicular, or neither?
5. Will Dave and Regina ever meet on the way to Hartford?

5. Use the graph below to answer the following questions.



1. What is the *y*-intercept of the line?
2. What is the slope of the line?
3. Write the equation of the line in $y=mx+b$ form.
4. Draw a line parallel to this line on the coordinate plane. Write the equation of your parallel line.
5. Draw a line perpendicular to this line on the coordinate plane. Write the equation of your perpendicular line.