

Perpendicular  
lines have  
opposite reciprocal  
slopes

Find an equation of  
the line perpendicular to  
 $y = -1/4 x + 6$  that passes through  $(-2, 7)$

$$m = -1/4, \text{ so } \perp \text{ slopes } 4$$
$$y - y_1 = m(x - x_1)$$
$$y - 7 = 4(x - (-2))$$
$$y - 7 = 4x + 8$$
$$y = 4x + 15$$

Slope

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

Parallel  
lines have  
equal slopes

Find an equation of  
the line through  $(1, 5)$  and  $(3, 9)$

$$m = \frac{9-5}{3-1} = \frac{4}{2} = 2$$
$$y - y_1 = m(x - x_1)$$
$$y - 5 = 2(x - 1)$$
$$y - 5 = 2x - 2$$
$$y = 2x + 3$$

Glue  
Here

**Slope - Intercept**  
 $y = mx + b$   
 $m = \text{slope}$   
 $b = \text{y-intercept}$

*Find the slope  
And y-intercept of  $3x - 5y = 8$ .*  
 $3x - 5y = 8$   
 $-5y = -3x + 8$   
 $y = 3/5 x - 8/5$   
 $m = 3/5$  and  $b = -8/5$

**Horizontal lines  
have zero slope.  
Vertical lines have  
Undefined slope.**

**Point - Slope**  
 $y - y_1 = m(x - x_1)$   
**Standard Form**  
 $Ax + By = C$

Glue  
Here