

# Student Activity

## Match Up on Slope-Intercept Form

**Match-up:** In each box of the grid below, you will find either the equation of a line or a description of a line. For each, determine the slope **and** the  $y$ -intercept and match it with the appropriate letters. If the slope or the  $y$ -intercept is not found among the choices or cannot be determined from the information given, then choose E or N respectively.

**Slope:** A 2    B  $\frac{1}{2}$     C  $-1$     D 0    E None of these or cannot be determined

**$y$ -Intercept:** J 3    K  $-2$     L 0    M 1    N None of these or cannot be determined

$y = \frac{1}{2}x - 3$	$y = -x + 3$	$x + y = 0$	The line is a vertical line passing through $(-2, 3)$ .
$6x - 3y = 6$	$y = 1 - 3x$	The line passes through $(0, 3)$ and $(2, 1)$ .	The line passes through $(0, -2)$ and $(2, -1)$ .
The line is a vertical line passing through $(2, 1)$ .	The line is a horizontal line passing through $(-2, 3)$ .	The line has intercepts $(0, 1)$ and $(-2, 0)$ .	The line is parallel to a horizontal line and passes through $(0, 1)$ .
The line is perpendicular to a line with a slope of $-2$ and passes through $(0, 3)$ .	$10x - 5y = 10$	$4y - 2x = 0$	The line is parallel to a line with a slope of 2 and passes through the origin.

# Student Activity

## Modeling Data with Linear Equations

**Directions:** Fill in the missing information in the table below. The first one has been done for you.

Mathematical model	Description	Slope and meaning of the slope	$y$ -intercept and meaning of the $y$ -intercept
$C = 4.5x + 250$	The cost $C$ of producing $x$ items.	$m = 4.5$ It costs \$4.50 to produce each item.	$(0, 250)$ Regardless of the number of items produced, the fixed costs are \$250.
$C = 0.10n + 25$	The cost $C$ of renting a car for a day and driving it for $n$ miles.		
$R = 8.5t$	The revenue $R$ from selling $t$ movie tickets.		
$P = 10h$	The weekly pay $P$ from working $h$ hours.		
$P = 25t - 500$	The profit $P$ from selling $t$ tickets to a benefit concert.		
$v = 32t$	The velocity $v$ of a falling object (in feet per second) $t$ seconds after it is dropped.		
	The distance $d$ a Toyota Prius hybrid car can travel on $g$ gallons of gasoline.	$m = 55$ A Toyota Prius gets 55 miles per gallon of gasoline. <small>(Source: <a href="http://www.toyota.com/prius/specs.html">www.toyota.com/prius/specs.html</a>)</small>	$(0, 0)$ The car can travel zero miles with zero gallons of gasoline in the tank.
	The cost $C$ of taking $n$ credit hours at a community college.	$m = 66$ The cost is \$66 per credit hour.	$(0, 25)$ There is a \$25 registration fee regardless of the number of credit hours taken.