

Algebra

Name: _____

Using **Standard Form** of a Line

Date: _____ Pd: _____

The **Standard Form** of a Line is $Ax + By = C$ where A, B, and C are *integers*.

Example: Write the equation $y = \frac{1}{3}x + 4$ in standard form.

$$y = \frac{1}{3}x + 4$$

$$-\frac{1}{3}x + y = 4$$

$$(-3)\left(-\frac{1}{3}x + y\right) = (-3)(4)$$

$$x - 3y = -12$$

The standard form of the equation is $x - 3y = -12$.

Example: Write the equation of the line passing through (2, -5) and (-1, 1) in standard form.

First find the equation of the line in slope-intercept form.

$$m = \frac{1 - (-5)}{-1 - 2} = \frac{6}{-3} = -2$$

$$y = mx + b$$

$$-5 = (-2)2 + b$$

$$-5 = -4 + b$$

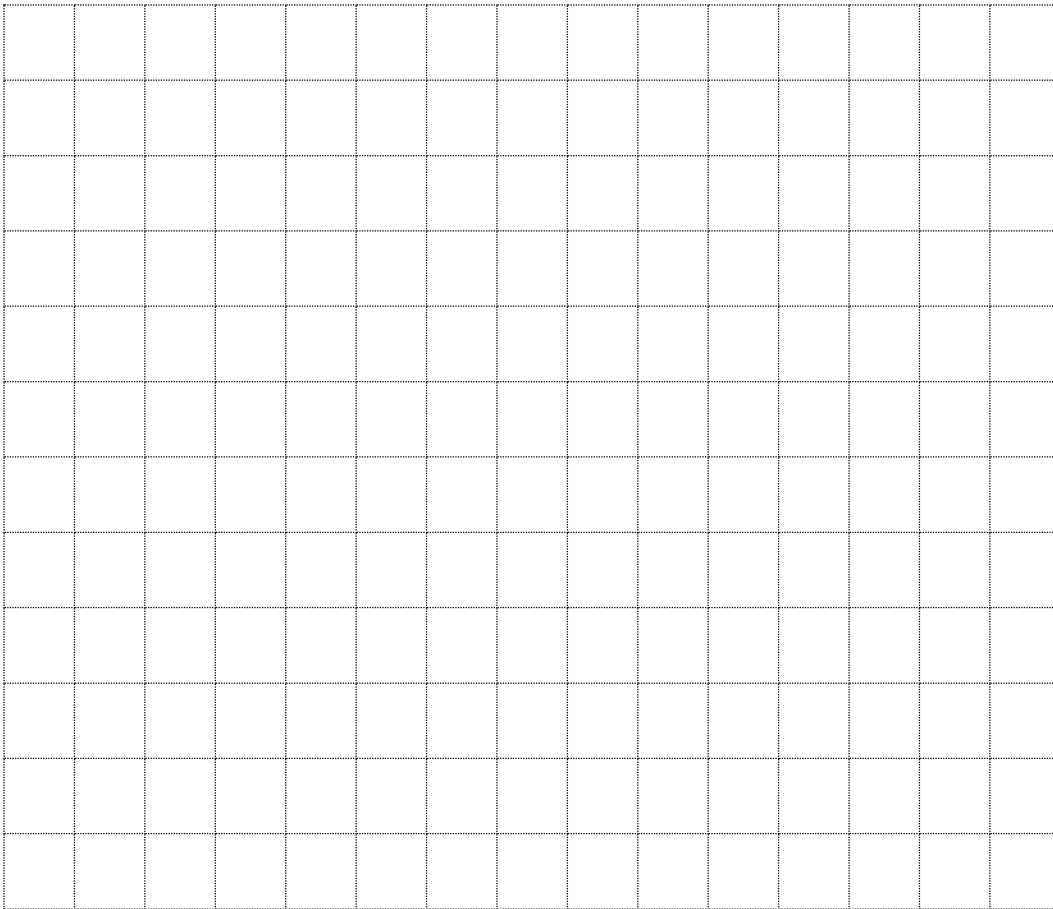
$$-1 = b$$

$$y = -2x - 1$$

$$2x + y = -1$$

The standard form of the equation is $2x + y = -1$.

1. Sarah makes \$3 for every scarf she sells and \$2 for every hat. Today she made \$36. Write an equation that relates the possible number of scarves, x , and hats, y , that Sarah could have sold. Graph this equation.



2. A garden supply store is making up 12-pound packages of potting soil. Each package contains topsoil that weighs 4 pounds per cubic foot and peat moss that weighs 3 pounds per cubic foot. Write an equation that represents the different number of cubic feet of topsoil, x , and peat moss, y , that can be used in a 12-pound package. Graph this equation.

