5.4 Write Linear Equations in Standard Form

Our Book:

Recall that the linear equation $Ax + By = C$ is in standard form, where A, B, and C are real numbers and A and B are not both zero. All linear equations can be written in standard form.

Another Algebra 1 Book:

IDENTIFY LINEAR EQUATIONS A linear equation is the equation of a line. Linear equations can often be written in the form $Ax + By = C$. This is called the standard form of a linear equation.

Key Concept — **Standard Form of a Linear Equation**

The standard form of a linear equation is

$$Ax + By = C,$$

where $A \geq 0$, A and B are not both zero, and A, B, and C are integers whose greatest common factor is 1.

Skill #15: Recognizing equivalent equations (in any form !)

EXAMPLE 1 **Write equivalent equations in standard form**

Write two equations in standard form that are equivalent to $2x - 6y = 4$.

Your Turn !

You Try: Skill #15

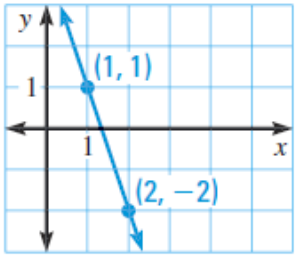
Write two equations in standard form that are equivalent to $x - y = 3$.

Don't forget to show your work and write down your answer !

Skill #16: Write an equation in standard form given a graph.

EXAMPLE 2 **Write an equation from a graph**

Write an equation in standard form of the line shown.



Your Turn !

You Try: Skill #15

Write an equation in standard form of the line through $(3, -1)$ and $(2, -3)$.

Don't forget to show your work and write down your answer !

Skill #17: Write equations of vertical and horizontal lines given two points.

1) Find an equation of the line passing through (1, 3) and (1, -5)

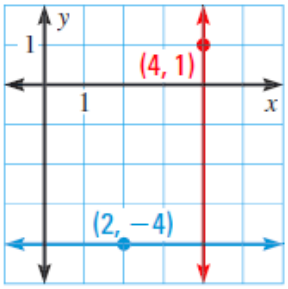
2) Find an equation of the line passing through (1, 3) and (-4, 3)

Skill #18: Write equations of vertical and horizontal lines given a graph.

EXAMPLE 3 Write an equation of a line

Write an equation of the specified line.

a. Blue line **b.** Red line



Your Turn !

You Try: Skill #15

Write equations of the horizontal and vertical lines that pass through the given point.

3. (−8, −9) **4.** (13, −5)

Don't forget to show your work and write down your answer !