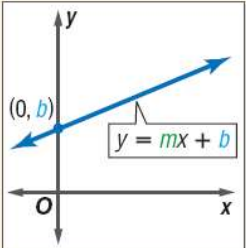


Slope-Intercept Form Introduction Notes

KEY CONCEPT		Slope-Intercept Form
Words	The linear equation $y = mx + b$ is written in slope-intercept form, where m is the slope and b is the y -intercept.	Graph 
Symbols	$y = \overbrace{mx}^{\text{slope}} + \underbrace{b}_{\text{y-intercept}}$	

**Remember from our previous lessons on slope that slope is also referred to as a rate of change.

**The y -intercept is the point where the graph of the line would cross the y -axis.

Example 1: Write an Equation given Slope and y -Intercept

Write an equation of the line whose slope is 3 and whose y -intercept is 5.

$$y = mx + b$$

The slope is represented by m , so we replace m with 3. The y -intercept is represented by b , so we replace b with 5.

$$y = 3x + 5 \quad \text{**This is our solution}$$

Example 2: Write an Equation given Slope and y -Intercept

Write an equation of the line whose slope is -3 and whose y -intercept is 1.

$$y = mx + b$$

The slope is represented by m , so we replace m with -3. The y -intercept is represented by b , so we replace b with 1.

$$y = -3x + 1 \quad \text{**This is our solution}$$

Example 3: Write an Equation given Slope and y -Intercept

Write an equation of the line whose slope is 4 and whose y -intercept is -2.

$$y = mx + b$$

The slope is represented by m , so we replace m with 4. The y -intercept is represented by b , so we replace b with -2.

$$y = 4x - 2 \quad \text{**This is our solution}$$

Example 4: Write an Equation in Slope-Intercept Form from a Context

The natural sweeteners used in foods include, sugar, corn sweeteners, syrup, and honey. In 1989, each person in the United States consumed an average of 133 pounds of natural sweeteners. The amount of natural sweeteners consumed has increased by an average of 2.6 pounds per year since 1989.

Slope can be referred to as a rate of change. We can think of this as the amount of change of the situation. In this context, the increase of 2.6 pounds is the rate of change, so that is our slope.

The y -intercept is often thought of as a starting point, or a constant value that does not change. In this context, the starting value is the 133 pounds consumed by each person in 1989, so that is our y -intercept.

$$y = mx + b$$

$$y = 2.6x + 133 \quad \text{**This is our solution}$$

Example 5: Write an Equation in Slope-Intercept Form from a Context

Suppose you have already saved \$50 toward the cost of a new television set. You plan to save \$5 more each week for the next several weeks.

If we think of slope as this as the amount of change of the situation, the increase of \$5 per week is the rate of change and our slope.

In this context, the starting value is the \$50 already saved, so that is our y -intercept.

$$y = mx + b$$

$$y = 5x + 50 \quad \text{**This is our solution}$$

Example 6: Write an Equation in Slope-Intercept Form from a Context

Suppose you have a savings account with a balance of \$1,000. You plan to pay for your Netflix subscription that costs \$12.99 per month out of this savings account.

Slope is the amount of change of the situation. The \$12.99 per month is the rate of change. However, it is important to remember that this \$12.99 will decrease the amount in the savings account. That means that the slope is -12.99 .

In this context, the starting value is the \$1,000 already in the savings account, so that is our y-intercept.

$$y = mx + b$$

$$y = -12.99x + 1000$$

**This is our solution