

Section 1.3 Linear Equations in Two Variables

Objective: In this lesson you learned how to find and use the slopes of lines to write and graph linear equations in two variables.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Slope

Parallel

Perpendicular

I. Using Slope (Pages 25–26)

The equation $y = mx + b$ is called a **linear equation in two variables** because . . .

What you should learn

How to use slope to graph linear equations in two variables

A line whose slope is positive _____ from left to right.

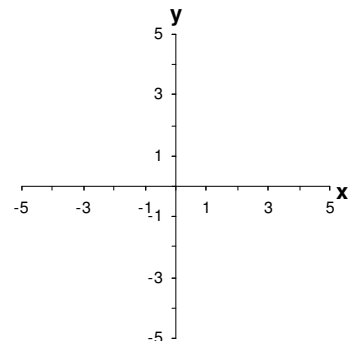
A line whose slope is negative _____ from left to right.

The **slope-intercept form** of the equation of a line is

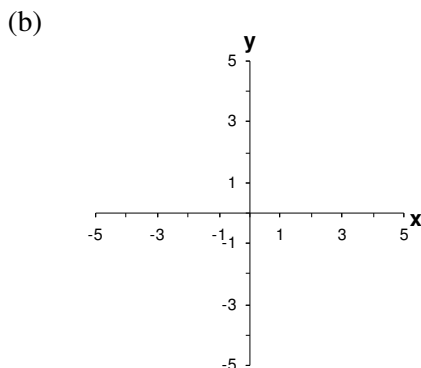
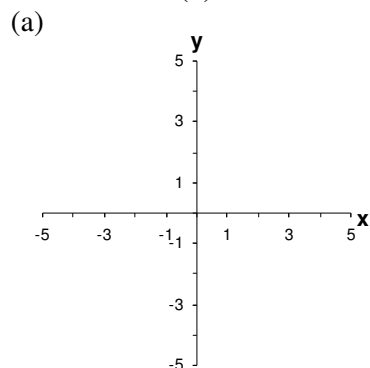
_____, where m is the _____ and the y -intercept is (____, ____).

A vertical line has an equation of the form _____. The equation of a vertical line cannot be written in the form $y = mx + b$ because . . .

Example 1: Explain how to graph the linear equation $y = -2/3x - 4$. Then sketch its graph.



Example 2: Sketch and label the graph of (a) $y = -1$ and
(b) $x = 3$.



II. Finding the Slope of a Line (Pages 27–28)

The formula for the **slope** of a line passing through the points (x_1, y_1) and (x_2, y_2) is $m = \frac{y_2 - y_1}{x_2 - x_1}$.

To find the slope of the line through the points $(-2, 5)$ and $(4, -3)$, . . .

If a line falls from left to right, it has _____ slope. If a line is horizontal, it has _____ slope. If a line is vertical, it has _____ slope. If a line rises from left to right, it has _____ slope.

What you should learn
How to find slopes of lines

III. Writing Linear Equations in Two Variables (Page 29)

The **point-slope form** of the equation of a line is _____.

The point-slope form is most useful for . . .

The **two-point form** of the equation of a line is _____.

What you should learn
How to write linear equations in two variables

Example 3: Find an equation of the line that passes through the points $(1, 5)$ and $(-3, 7)$ using (a) the point-slope form and (b) the slope-intercept form.

IV. Parallel and Perpendicular Lines (Page 30)

The relationship between the slopes of two lines that are parallel is . . .

The relationship between the slopes of two lines that are perpendicular is . . .

A line that is parallel to a line whose slope is 2 has slope _____.

A line that is perpendicular to a line whose slope is 2 has slope _____.

What you should learn

How to use slope to identify parallel and perpendicular lines

V. Applications of Slope (Pages 31–33)

In real-life problems, the slope of a line can be interpreted as either a(n) _____ or a(n) _____. If the x -axis and y -axis have the same unit of measure, then the slope has no units and is a _____. If the x -axis and y -axis have different units of measure, then the slope is a _____.

Describe a real-life situation in which slope is a ratio.

Describe a real-life situation in which slope is a rate of change.

Linear or straight-line depreciation is . . .

What you should learn

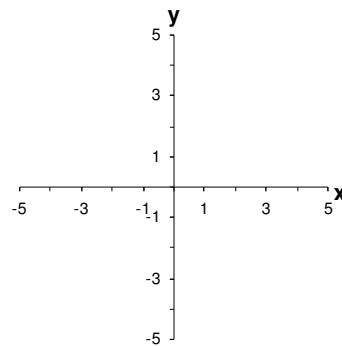
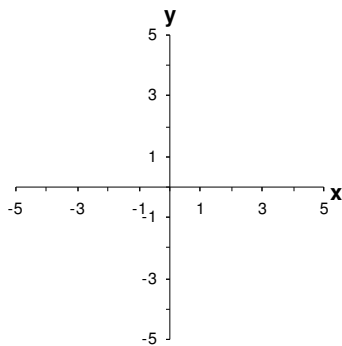
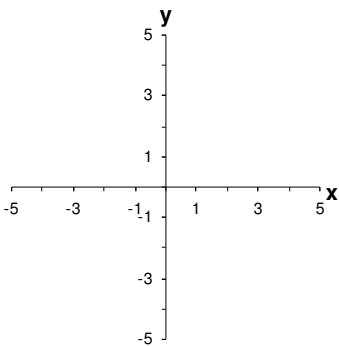
How to use linear equations in two variables to model and solve real-life problems

The prediction method in which an estimated point does not lie between the given points is called _____.

When the estimated point lies between two given points, the procedure is called _____.

Every line has an equation that can be written in **general form**, which is given as _____, where A and B are not both zero.

Additional notes



Homework Assignment

Page(s)

Exercises