

Study Skills in Action

Reading Your Textbook Like a Manual

Many students avoid opening their textbooks for the same reason many people avoid opening their checkbooks—*anxiety and frustration*. The truth? Not opening your math textbook will cause more anxiety and frustration! Your textbook is a manual designed to help you master skills and understand and remember concepts. It contains many features and resources that can help you be successful in your course.

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4.2 Graphs of Equations in Two Variables

(1) Sketch graphs of equations using the point-plotting method. Find and use x - and y -intercepts as aids to sketching graphs. Use the verbal problem-solving method to write an equation and sketch its graph.

The Graph of an Equation in Two Variables
The solutions of an equation involving two variables can be represented by points on a rectangular coordinate system. The set of all such points is called the **graph** of the equation.

(2) **EXAMPLE 1** Sketching the Graph of an Equation
Sketch the graph of $3x + y = 5$.

SOLUTION
Begin by solving the equation for y , so that y is isolated on the left.
 $3x + y = 5$ Write original equation.
 $y = -3x + 5$ Subtract $3x$ from each side.

Next, create a table of values, as shown below.

x	-2	-1	0	1	2	3
$y = -3x + 5$	11	8	5	2	-1	-4
Solution point	(-2, 11)	(-1, 8)	(0, 5)	(1, 2)	(2, -1)	(3, -4)

Now, plot the solution points. It appears that all six points lie on a line, so complete the sketch by drawing a line through the points.

(3) **The Point-Plotting Method of Sketching a Graph**
1. If possible, rewrite the equation by isolating one of the variables.
2. Make a table of values showing several solution points.
3. Plot these points on a rectangular coordinate system.
4. Connect the points with a smooth curve or line.

(4) **Exercises Within Reach®** Solutions in English & Spanish and tutorial videos at AlgebraWithaReach.com.
Sketching the Graph of an Equation In Exercises 1 and 2, complete the table and use the results to sketch the graph of the equation.

1. $y = 9 - x$

x	-2	-1	0	1	2
y					

2. $y = x - 1$

x	-2	-1	0	1	2
y					

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4 Chapter Summary

(5) **What did you learn?** **Explanation and Examples** **Review Exercises**

(6) **4.1** Plot points on a rectangular coordinate system (p. 169). **1-10**

4.1 Determine whether ordered pairs are solutions of equations (p. 169). **11-22**

Use the verbal problem-solving method to plot points on a rectangular coordinate system (p. 169). **23, 24**

Sketch graphs of equations using the point-plotting method (p. 169). **25-36**

Find and use x - and y -intercepts as aids to sketching graphs (p. 170). **37-44**

4.2 Use the verbal problem-solving method to write an equation and sketch its graph (p. 172). **45, 46**

Smart Study Strategy

Use the Features of Your Textbook

To review what you learned in a previous class:

- Read the list of skills you should learn (1) at the beginning of this section. If you cannot remember how to perform a skill, review the appropriate example (2) in the section.
- Read and understand the contents of all tinted concept boxes (3)—these contain important definitions and rules.

To prepare for homework:

- Complete a few of the exercises (4) following each example. If you have difficulty with any of these, reread the example or seek help from a peer or instructor.

To review for quizzes and tests:

- Make use of the Chapter Summary (5). Check off the concepts (6) you know, and review those you do not know.
- Complete the Review Exercises. Then take the Mid-Chapter Quiz, Chapter Test, or Cumulative Test, as appropriate.