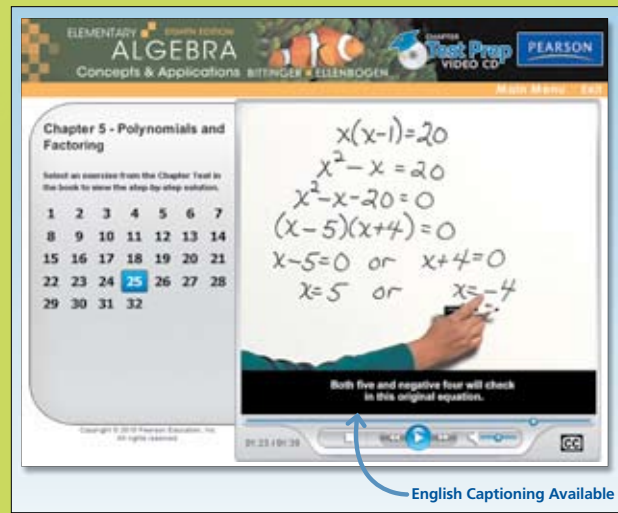


ADDITIONAL STUDENT RESOURCES



CHAPTER Test Prep VIDEO CD

The Chapter Test Prep Video CD provides step-by-step solutions to every problem in the Chapter Test, and is included with every copy of the book. These videos provide guidance and support when students need the most help: the night before an exam. All videos include optional subtitles in English.

Name: _____ Date: _____
 Instructor: _____ Section: _____

Chapter 4 POLYNOMIALS

4.2 Polynomials

Topics

- Terms
- Types of Polynomials
- Degree and Coefficients
- Combining Like Terms
- Evaluating Polynomials and Applications

Key Terms

Use the vocabulary terms listed below to complete each statement in Exercises 1–4.

term	coefficient	degree	polynomial
1. A _____ is a monomial or a sum of monomials.			
2. A polynomial composed of two _____(s) is a binomial.			
3. The _____ of a term is the number of variable factors in that term.			
4. The constant factor of a term is the _____ of that term.			
5. Determine whether the expression is a polynomial: $5x^2 - 6.9$ 5. _____			
6. Identify the terms of the polynomial: $3 - 4x + x^2$ 6. _____			
7. Determine the coefficient and the degree of each term in the polynomial: $5x^2 + 6x + 3$ 7. _____			

Worksheets for Classroom or Lab Practice offer extra practice exercises for every section of the text, with ample space for students to show their work. These lab- and classroom-friendly workbooks also list the learning objectives and key vocabulary terms for every text section, along with vocabulary practice problems.



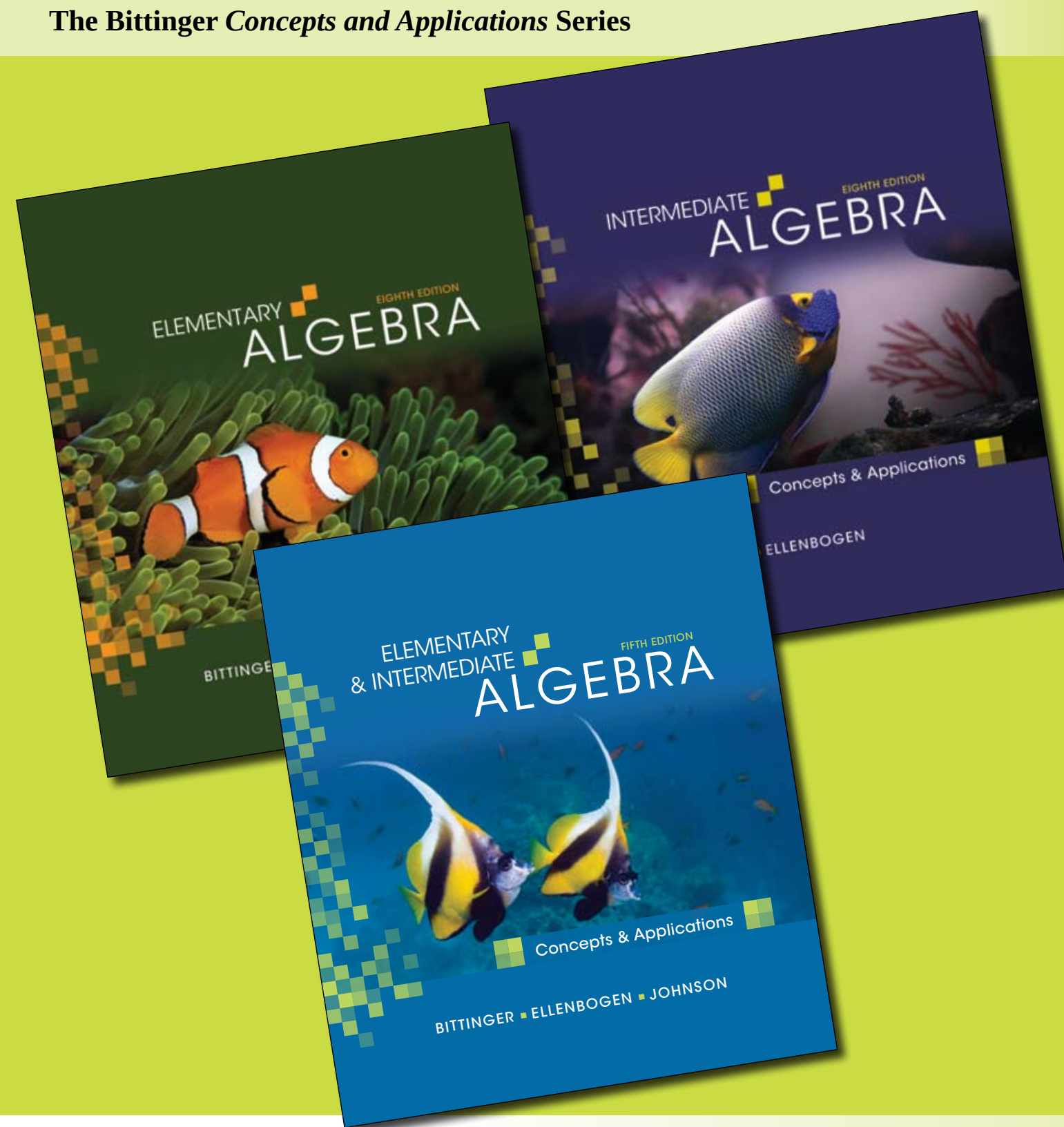
Enhancements to Bittinger's MyMathLab course include the following features:

- **Interactive Translating for Success** activities give students practice matching word problems to their appropriate equations or inequalities.
- **Interactive Visualizing for Success** activities give students practice with matching graphs to their corresponding equations or inequalities.
- **Translating Word Problems** activities help students practice the translation step of solving word problems.
- **Concept Videos** illustrate the most difficult math topics in a visually appealing and accessible manner.
- **The English/Spanish Glossary** allows students to look up key mathematical terms and hear their definitions in either English or Spanish.



EXCELLENCE THROUGH INNOVATION

The Bittinger Concepts and Applications Series



For an online walkthrough of this series, go to www.pearsonhighered.com/showtell/bittinger_0321557174

The Bittinger Concepts and Applications Series • © 2010 • Bittinger • Ellenbogen • Johnson
 Elementary Algebra: Concepts and Applications, Eighth Edition • ISBN-13: 978-0-321-55717-9 • ISBN-10: 0-321-55717-4
 Intermediate Algebra: Concepts and Applications, Eighth Edition • ISBN-13: 978-0-321-55718-6 • ISBN-10: 0-321-55718-2
 Elementary and Intermediate Algebra: Concepts and Applications, Fifth Edition • ISBN-13: 978-0-321-55944-9 • ISBN-10: 0-321-55944-4



© 2008 Pearson Education, Inc., publishing as Addison-Wesley. All rights reserved. Printed in the U.S.A. A09_182/1208

COUNT ON US
 PEARSON MATHEMATICS



The Bittinger Concepts and Applications series brings proven pedagogy to a new generation of students, with innovative new features to help today's students learn.

www.pearsonhighered.com/bittingerellenbogenseries

MAKING CONNECTIONS

Bittinger's innovative pedagogy helps students see the connections between topics, guiding the transition from skills-based math to the concepts-oriented math required for college courses.

REINFORCING CONCEPTS

Trusted exercises, applications, and review materials give students abundant opportunities to develop and retain conceptual understanding.

Translating for Success

1. Consecutive integers. The sum of two consecutive even integers is 102. Find the integers.

2. Dimensions of a triangle. One angle of a triangle is twice the measure of a second angle. The third angle measures 102° more than the second angle. Find the measures of the angles.

6. Numerical relationship. One number is 6 more than twice another. The sum of the numbers is 102. Find the numbers.

7. DVD collections. Together Ella and Ken have 102 DVDs. If Ken has 6 more

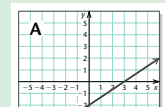
Translate each word problem to an equation or an inequality and select a correct translation from A–O.

A. $0.05(25,750) = x$

B. $x + 2x = 102$

C. $2x + 2(x + 6) = 102$

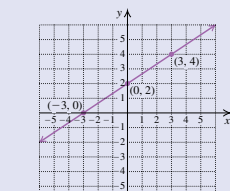
D. $2x + x + x + 102 = 180$



NEW! Translating for Success exercises offer extra practice with the important “Translation” step of solving word problems. After translating each of ten problems into its appropriate equation or inequality, students are asked to choose from fifteen possible translations, forcing them to comprehend the problem before matching.

CONNECTING the CONCEPTS

Any line can be described by a number of equivalent equations. For example, all four of the equations below describe the given line.



$y = \frac{2}{3}x + 2,$
 $2x - 3y = -6,$
 $y - 4 = \frac{2}{3}(x - 3),$
 $2x + 6 = 3y$

Form of a Linear Equation	Example	Uses
Slope-intercept form: $y = mx + b$ or $f(x) = mx + b$	$f(x) = \frac{1}{2}x + 6$	Finding slope and y-intercept Graphing using slope and y-intercept Writing an equation given slope and y-intercept Writing linear functions
Standard form: $Ax + By = C$	$5x - 3y = 7$	Finding x- and y-intercepts Graphing using intercepts Solving systems of equations (see Chapter 3)
Point-slope form: $y - y_1 = m(x - x_1)$	$y - 2 = \frac{2}{3}(x - 1)$	Finding slope and a point on the line Graphing using slope and a point on the line Writing an equation given slope and a point on the line or given two points on the line Working with curves and tangents in calculus

MIXED REVIEW

State whether each equation is in slope-intercept form, standard form, point-slope form, or none of these.

- $2x + 5y = 8$
- $y = \frac{2}{3}x - \frac{11}{3}$
- $x - 13 = 5y$
- $y - 2 = \frac{1}{2}(x - 6)$
- $x - y = 1$
- $y = -18x + 3.6$

Write each equation in standard form.

- $y = \frac{2}{3}x + 1$
- $y - 1 = -2(x - 6)$

Write each equation in slope-intercept form.

- $3x - 5y = 10$
- $y + 2 = \frac{1}{2}(x - 3)$

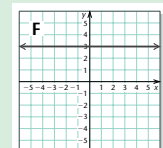
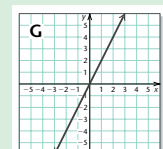
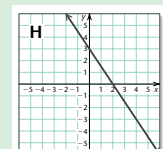
Graph.

- $y = 2x - 1$
- $3x + y = 6$

Visualizing for Success

Match each equation or function with its graph.

- $y = x + 4$
- $y = 2x$
- $y = 3$
- $x = 3$
- $f(x) = -\frac{1}{2}x$
- $2x - 3y = 6$

NEW! Visualizing for Success exercises ask students to match equations and inequalities with their graphs, allowing them to recognize the important characteristics of the equation and visualize the corresponding attributes of its graph.

Connecting the Concepts are placed at strategic points in each chapter and are now accompanied by mixed practice exercises from several sections, helping students to see the bigger picture of math.

Study Summary

KEY TERMS AND CONCEPTS

SECTION 2.1: GRAPHS

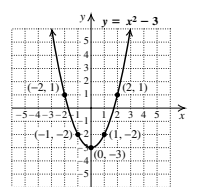
We can **graph** an equation by selecting values for one variable and finding the corresponding values for the other variable. We plot the resulting ordered pairs and draw the graph.

EXAMPLES

Graph: $y = x^2 - 3$.

x	y	(x, y)
0	-3	(0, -3)
-1	-2	(-1, -2)
1	-2	(1, -2)
-2	1	(-2, 1)
2	1	(2, 1)

Choose any x. Compute y. Form the pair. Plot the points and draw the graph.



End-of-Chapter Study Summaries are now in a two-column format, with a review of concepts in one column and an appropriate example for each concept in the adjacent column, providing an easy reference for studying.

EXAMPLE 6 Find each indicated function value.

a) $f(5)$, for $f(x) = 3x + 2$

b) $g(-2)$, for $g(r) = 5r^2 + 3r$

c) $h(4)$, for $h(x) = 11$

d) $F(a + 1)$, for $F(x) = 2x - 7$

SOLUTION Finding function values is much like evaluating an algebraic expression.

a) $f(5) = 3(5) + 2 = 17$

b) $g(-2) = 5(-2)^2 + 3(-2) = 5 \cdot 4 - 6 = 14$

c) For the function given by $h(x) = 11$, all inputs share the same output, 11. Therefore, $h(4) = 11$. The function h is an example of a **constant function**.

d) $F(a + 1) = 2(a + 1) - 7 + 1$ The input is a ; $F(a) = 2a - 7$
 $= 2a - 6$

e) $F(a + 1) = 2(a + 1) - 7$ The input is $a + 1$.
 $= 2a + 2 - 7 = 2a - 5$

STUDENT NOTES

In Example 5(e), it is important to note that the parentheses on the left are for function notation, whereas those on the right indicate multiplication.

TRY EXERCISE 55

NEW! “Try” Exercises conclude nearly every example by pointing students to one or more parallel exercises from the corresponding exercise set for immediate reinforcement of concepts or skills presented in the example.

Consider the function given by $f(x) = |x| - 3$.

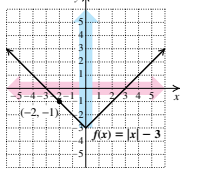
$f(-2) = |-2| - 3 = 2 - 3 = -1$

The input -2 corresponds to the output -1 .

The function contains the ordered pair $(-2, -1)$.

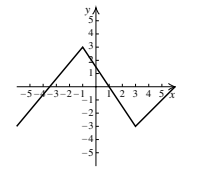
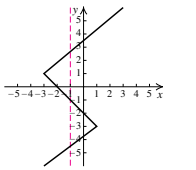
The domain of the function is \mathbb{R} .

The range of the function is $\{y \mid y \geq -3\}$.



The Vertical-Line Test

If it is possible for a vertical line to cross a graph more than once, then the graph is not the graph of a function.

This is the graph of a function. This is not the graph of a function.

Find the domain of the function given by $f(x) = \frac{x + 2}{x - 7}$.

Function values cannot be calculated when the denominator is 0. Since $x - 7 = 0$ when $x = 7$, the domain of f is $\{x \mid x \neq 7\}$.

2.1 EXERCISE SET

To the student and the instructor: The **TRY EXERCISES** for examples are indicated by a shaded block on the exercise number. Complete step-by-step solutions for these exercises appear online at www.pearsonhighered.com/bittingerellenbogen.

Concept Reinforcement Complete each of the following statements.

- The two perpendicular number lines that are used for graphing are called _____.
- Because the order in which the numbers are listed is important, numbers listed in the form (x, y) are called _____ pairs.
- In the _____ quadrant, both coordinates of a point are negative.
- In the fourth quadrant, a point's first coordinate is positive and its second coordinate is _____.
- To graph an equation means to make a drawing that represents all _____ of the equation.
- An equation whose graph is a straight line is said to be a(n) _____ equation.

11. Plot the points $M(2, 3)$, $N(5, -3)$, and $P(-2, -3)$. Draw \overline{MN} , \overline{NP} , and \overline{MP} . (\overline{MN} means the line segment from M to N .) What kind of geometric figure is formed? What is its area?

12. Plot the points $Q(-4, 3)$, $R(5, 3)$, $S(2, -1)$, and $T(-7, -1)$. Draw \overline{QR} , \overline{RS} , \overline{ST} , and \overline{TQ} . What kind of figure is formed? What is its area?

Name the quadrant in which each point is located.

13. $(3, -5)$ **14.** $(-6, -5)$

15. $(-3, -12)$ **16.** $(-18, 0.16)$

17. $(11, \frac{1}{4})$ **18.** $(31, 48)$

19. $(-1.2, 46)$ **20.** $(\frac{3}{4}, -\frac{1}{2})$

Determine whether each ordered pair is a solution of the given equation. Remember to use alphabetical order for substitution.

21. $(2, -1)$; $y = 3x - 7$ **22.** $(1, 4)$; $y = 5x - 1$

23. $(3, 2)$; $2x - y = 5$ **24.** $(5, 5)$; $3x - y = 5$

25. $(3, -1)$; $a - 5b = 8$

26. $(1, -4)$; $2u - v = -6$

Concept Reinforcement Exercises, located at the beginning of each exercise set, focus on the new vocabulary and notation in the section, helping students gain confidence in their grasp of the new material.