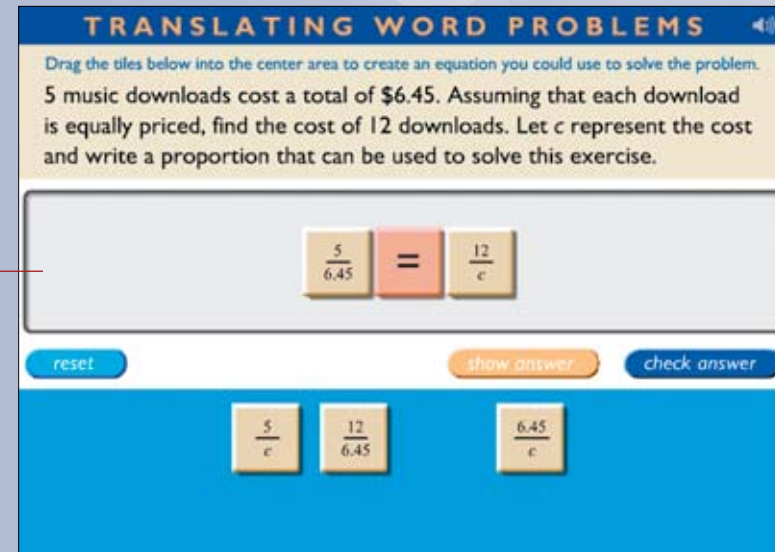


ADDITIONAL STUDENT RESOURCES

NEW TO THE SULLIVAN/STRUVE/MAZZARELLA MyMathLab COURSES

- **Substantially increased coverage of exercises** (including Chapter Review exercises) gives students more opportunity for practice.
- **Authors in Action Classroom Lectures** take students into the classrooms of authors Michael Sullivan, Katherine Struve, and Janet Mazzarella.
- **Video lectures and chapter test solutions on video** now include optional subtitles in English and Spanish. Video lectures will also be available as podcasts.
- **Translating Word Problems Animations** help students practice the translation step of solving word problems.
- **An Interactive English/Spanish glossary** offers definitions of important mathematical terms in both English and Spanish.
- **Concept Videos** illustrate the most difficult math topics in a visually appealing and accessible manner.



TRANSLATING WORD PROBLEMS

Drag the tiles below into the center area to create an equation you could use to solve the problem.

5 music downloads cost a total of \$6.45. Assuming that each download is equally priced, find the cost of 12 downloads. Let c represent the cost and write a proportion that can be used to solve this exercise.

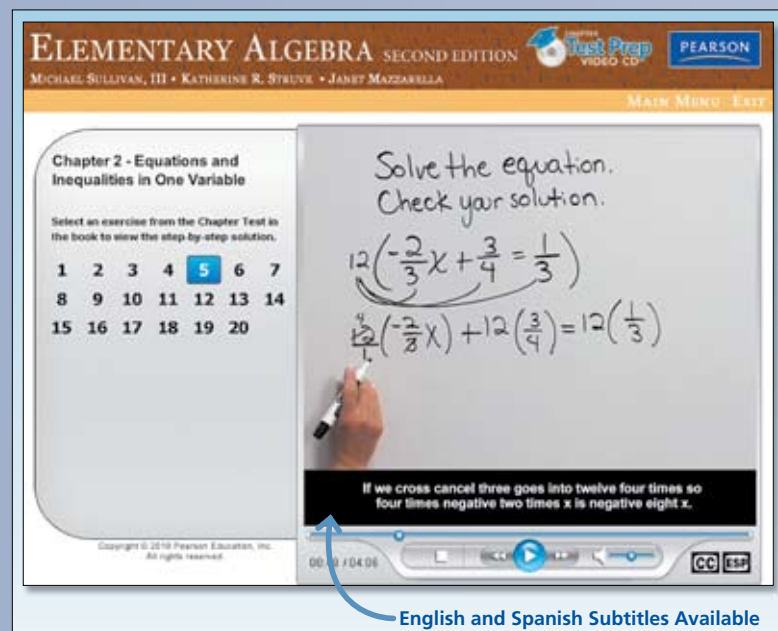
reset show answer check answer

$\frac{5}{6.45} = \frac{12}{c}$

INCLUDED WITH EVERY NEW COPY OF THE BOOK!



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 and Spanish.



ELEMENTARY ALGEBRA SECOND EDITION

Chapter 2 - Equations and Inequalities in One Variable

Solve the equation. Check your solution.

$$12\left(-\frac{2}{3}x + \frac{3}{4}\right) = \frac{1}{3}$$

$$12\left(-\frac{2}{3}x\right) + 12\left(\frac{3}{4}\right) = 12\left(\frac{1}{3}\right)$$

If we cross cancel three goes into twelve four times so four times negative two times x is negative eight x.

English and Spanish Subtitles Available

For an online walkthrough of this series, go to www.pearsonhighered.com/showtell/sullivan_032156748X

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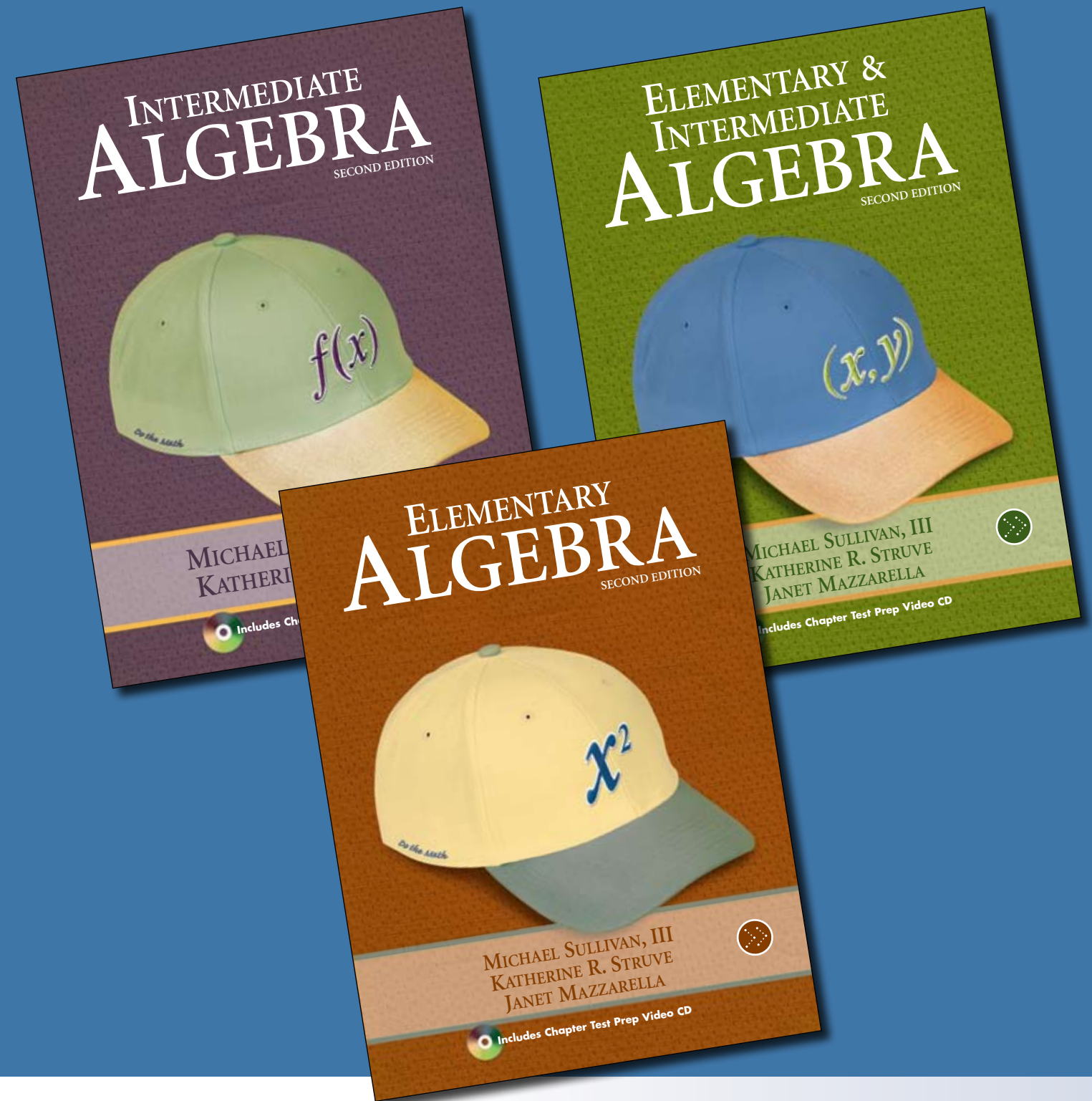
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The Sullivan/Struve/Mazzarella Algebra Series



The Sullivan/Struve/Mazzarella algebra series was written to motivate students to “do the math” outside of the classroom through a design and organization that models what instructors do inside the classroom.

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PEARSON MATHEMATICS



EXAMPLES AND EXERCISES THAT DRAW STUDENTS INTO THE TEXT

Sullivan's **Examples** and **Showcase Examples** provide students with superior guidance and instruction when they need it most—when they are away from the instructor and the classroom.

EXAMPLE 3 Factoring Completely
Factor: $16x^2 + 112xy + 196y^2$

Solution
We first look for a common factor. Each term has a factor of 4, so the GCF is 4.
 $16x^2 + 112xy + 196y^2 = 4(4x^2 + 28xy + 49y^2)$

We concentrate on the polynomial in parentheses. There are three terms in the parentheses. Notice that the first term is a perfect square, $4x^2 = (2x)^2$. The third term is also a perfect square, $49y^2 = (7y)^2$. The middle term is 2 times the product of $2x$ and $7y$. The polynomial in parentheses is a perfect square trinomial.

$$4(4x^2 + 28xy + 49y^2) = 4((2x)^2 + 2(2x)(7y) + (7y)^2)$$

$$A = 2x, B = 7y;$$

$$A^2 + 2AB + B^2 = (A + B)^2: = 4(2x + 7y)^2$$

Check
 $4(2x + 7y)^2 = 4(2x + 7y)(2x + 7y)$
FOIL: $= 4(4x^2 + 14xy + 14xy + 49y^2)$
Combine like terms: $= 4(4x^2 + 28xy + 49y^2)$
Distribute: $= 16x^2 + 112xy + 196y^2$

Innovative Examples
All examples have the annotations to the left of the algebra, rather than to the right, as with most other math books. Students report that this makes more sense because they read left-to-right. These annotations suggest what students are about to do (active) instead of what was just done (passive).

Showcase Examples provide how-to instruction in an easy-to-understand, 3-column format. The left column describes a procedure, the middle column provides a brief explanatory annotation as needed, and the right column presents the algebra.

Quick Check Exercises immediately follow the examples, allowing students to practice and apply what they have just learned. These exercises are also assignable as homework, so students can easily refer back to the example for extra help.

EXAMPLE 1 How to Factor Completely
Factor: $8x^2 - 16x - 42$

Step-by-Step Solution

Step 1: Factor out the greatest common factor (GCF), if any exists.	The GCF is 2, so we factor 2 out of the expression.	$8x^2 - 16x - 42 = 2(4x^2 - 8x - 21)$
Step 2: Count the number of terms.	There are three terms in the polynomial in parentheses.	
Step 3: We concentrate on the trinomial in parentheses, $4x^2 - 8x - 21$. It is not a perfect square trinomial. Because the coefficient on the square term, 4, and the constant, -21, aren't that big, we choose to factor by grouping.	$ac = 4(-21) = -84$ Because $6 \cdot (-14) = -84$ and $6 + (-14) = -8$, we rewrite $4x^2 - 8x - 21$ as $4x^2 + 6x - 14x - 21 = (4x^2 + 6x) + (-14x - 21)$ GCF in 1st grouping: $2x$; GCF in 2nd grouping: -7 Factor out $2x + 3$: $= 2x(2x + 3) - 7(2x + 3)$ $= (2x + 3)(2x - 7)$	
Step 4: Check		$2(2x + 3)(2x - 7) = 2(4x^2 - 14x + 6x - 21)$ $= 2(4x^2 - 8x - 21)$ Distribute: $= 8x^2 - 16x - 42$

The answer checks, so $8x^2 - 16x - 42 = 2(2x + 3)(2x - 7)$.

Quick ✓ In Problems 1 and 2, factor the polynomial completely.
1. $2p^2q - 8pq^2 - 90q^3$
2. $-45x^2y + 66xy + 27y$

4.7 EXERCISES

1–16, are the Quick ✓s that follow each EXAMPLE

Building Skills
In Problems 17–64, factor each polynomial completely. See Objective 1.

17. $2x^2 - 12x - 144$	18. $3x^2 + 6x - 105$	35. $3x^2 - 7x - 16$	36. $4w^2 - 3w - 6$
19. $-3y^2 + 27$	20. $-5a^2 + 80$	37. $36q^3 + 24q^2 + 4q$	38. $20k^3 - 60k^2 + 45k$
21. $4b^2 + 20b + 25$	22. $8m^2 - 42m + 49$	39. $24m^3n - 66m^2n - 63mn$	
23. $16w^3 + 2y^6$	24. $54p^6 - 2q^3$	40. $20p^3q - 2p^2q - 4pq$	
25. $-3z^2 + 12z - 18$	26. $-4c^3 + 16c^2 - 28c$	41. $3r^5 - 24r^2s^3$	
27. $20y^2 - 9y - 18$	28. $18t^2 - 9t - 20$	42. $54p^5 + 16p^2q^3$	
29. $x^3 - 4x^2 + 5x - 20$	30. $p^3 + 7p^2 - 3p - 21$	43. $2x^3 + 8x^2 - 18x - 72$	
31. $200x^2 + 18y^2$	32. $12p^2 + 50q^2$	44. $3x^3 - 6x^2 - 48x + 96$	
33. $x^4 - 81$	34. $16w^4 - 1$	45. $9x^4 - 1$	
		46. $4z^4 - 25$	
		47. $3w^4 + 4w^2 - 15$	
		48. $4b^4 + 4b^2 - 15$	

Students learn algebra by doing algebra. Throughout the text, the exercises are organized into eight categories, giving students the diverse practice they need to master the material.

- "Preparing For..."
- Applying the Concepts
- Quick Check Exercises
- Extending the Concepts
- Building Skills
- Explaining the Concepts
- Mixed Practice
- Graphing Calculator

DO THE MATH WORKBOOK

The **Do the Math Workbook** offers a collection of 5-Minute Warm-Up exercises, Guided Practice exercises, and Do the Math exercises for each section in the text. These worksheets can be used as in-class assignments, in-lab study assignments, or homework.

Five-Minute Warm-Up 4.7
Factoring: A General Strategy

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

In Problems 1–4, find each product.

1. $(-4x^2y^3)(2xy^3)$	2. $\frac{4}{3}ab\left(\frac{9}{2}a^2b - \frac{3}{4}a^3 + \frac{15}{8}b\right)$	1. _____
		2. _____
3. $(4x + 3y)(5x - 2y)$	4. $(a + 4b)^3$	3. _____
		4. _____

In Problems 5 and 6, factor completely.

5. $-27a^3 + 9a^2 - 18a$	6. $4p^2 - 8pq + 3p - 6q$	5. _____
		6. _____

Guided Practice 4.7
Factoring: A General Strategy

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

Objective 1: Factor Polynomials Completely

1. Review the Steps for Factoring listed at the beginning of Section 4.7. Step 1 should always be _____, if possible.

2. Factor: $-12x^3 - 20x^2y + 8xy^2$ (See textbook Example 1)

Step 1: Factor out the greatest common factor (GCF), if any exists. Determine the GCF: (a) GCF = _____
Factor out the GCF: (b) $-12x^3 - 20x^2y + 8xy^2 =$ _____

Step 2: Count the number of terms. How many terms are in the polynomial in parentheses? (c) _____

Step 3: We concentrate on the trinomial in parentheses. It is not a perfect square trinomial. Use either factoring by grouping or the trial and error method to factor the trinomial whose leading coefficient is not 1. Factor the trinomial: (d) _____

Step 4: Check We leave it to you to multiply and then distribute to verify the factors are correct.

3. Factor: $64a^2 - 25b^4$ (See textbook Example 2)

Step 1: Factor out the greatest common factor (GCF), if any exists. There is no GCF.

Step 2: Count the number of terms. How many terms are in the polynomial? (a) _____

Step 3: Because the first term $64a^2 = (8a)^2$, and the second term, $25b^4 = (5b^2)^2$, are both perfect squares, we have the difference of two squares. Factor the binomial: (b) _____

Step 4: Check We leave it to you to multiply to verify the factors are correct.

Do the Math Exercises 4.7
Factoring: A General Strategy

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

In Problems 1–20, factor each polynomial completely.

1. $3x^2 + 6x - 105$	2. $-5a^2 + 80$	1. _____
		2. _____
3. $8m^2 - 42m + 49$	4. $54p^6 - 2q^3$	3. _____
		4. _____
5. $-4c^3 + 16c^2 - 28c$	6. $18t^2 - 9t - 20$	5. _____
		6. _____
7. $12p^3 + 50q^2$	8. $16w^4 - 1$	7. _____
		8. _____
9. $4w^2 - 3w - 6$	10. $20p^3q - 2p^2q - 4pq$	9. _____
		10. _____
11. $54p^4 + 16p^2q^3$	12. $4c^4 - 25$	11. _____
		12. _____

5-Minute Warm-Up
These exercises can be used as a short homework assignment to help students prepare for class or as a quick warm-up at the start of class.

Guided Practice
These interactive exercises can be used as a resource to support classroom lecture or practice time, but they may also provide extra guidance for students doing work outside of the classroom. Many of the examples in the Guided Practice sections are based on the Showcase Examples from the main text.

Do the Math
Practice is the key to understanding basic skills and procedures in math. The Do the Math exercises allow students to do just that—practice and DO the math!