

Grades 7–8

Provide pre-algebra with a practical mathematics that makes sense rather than with wordy theorizing.

Basic Mathematics and Pre-Algebra (7–8)

Structured for success

The logical arrangement of the material aids learning as the text moves step by step from basic concepts to the more difficult. Parents appreciate the fact that many more practice exercises are included in *Basic Mathematics* and *Pre-Algebra* than in any other math books written on this level. Practical word problems throughout the text show students the benefits of learning math.

Built-in review

A thorough review of basic concepts learned in previous years

Basic Mathematics (7)

This work-text gives a strong review of all arithmetic concepts and skills with a year-long emphasis upon mastering and applying percents. Other branches of mathematics include algebra, plane and solid geometry, statistics, and trigonometry. Two units on basic algebra give the junior-high student the foundation he needs to enjoy and succeed in high school algebra. Practical topics such as adjusting recipes, banking, and reading the electric meter appeal to students and teachers alike. Frequent special features called *Problem-Solving Strategies* help students develop needed problem-solving skills. Charts, glossary, and index complete this excellent work-text.

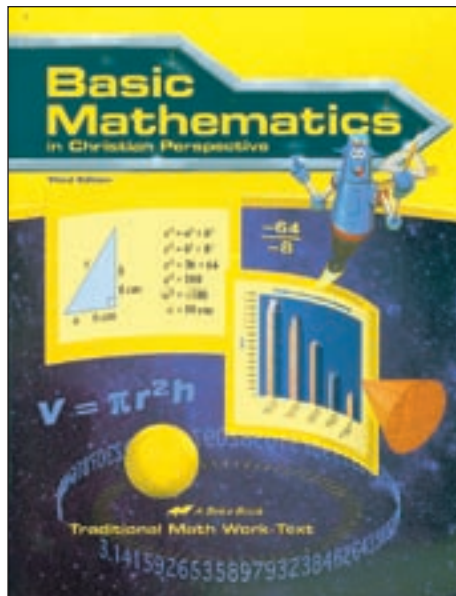
is included. Each lesson is followed by a “Sharpening Skills” assignment that provides homework that reviews not only that day’s lesson, but also material from previous lessons.

Teachable format

The material is masterfully divided into teachable daily lessons. The bright, open appearance and clear, readable type encourage student interest. A Student Test and Quiz Book (with Teacher Key) is available for each book.

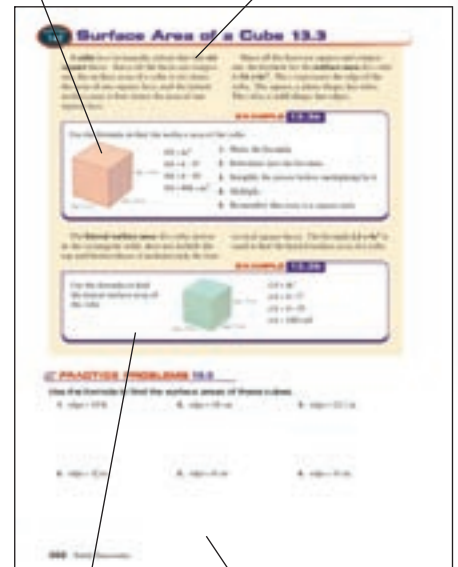
Detailed Curriculum

Parents appreciate these detailed lesson guides that save hours of planning. Each lesson includes teacher preparation and teaching procedure. Many additional examples are given for the parent to explain to the child. The step-by-step procedures make teaching easy and thorough. The separate Teacher Key/Edition consists of the complete student texts with solutions.



Attractive illustrations make concepts concrete.

Concepts are explained clearly.

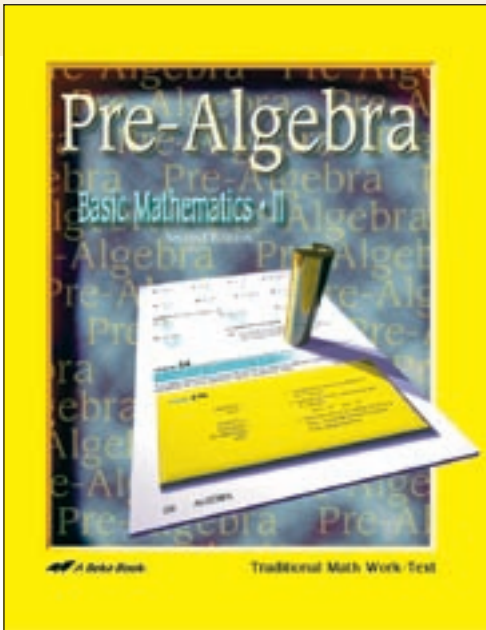


Excellent examples give step-by-step procedures.

Abundant practice helps students learn and master important skills.

Mathematics

Grade 8



Pre-Algebra (8)

This pre-algebra work-text gives a brief but complete review of all arithmetic topics, broadening many topics to include more than one approach to the correct solution. Much of the text is devoted to algebra and related topics, scientific notation, geometry, statistics, and trigonometry. Problem-solving strategies help students apply mathematical skills to word problems. Students build confidence in their mathematical potential as they successfully work in advanced topics that are presented in an understandable and interesting style.

Helpful illustrations

Practical word problems

Step-by-step plan for solving word problems

Each step illustrated

Additional work to stretch students' thinking abilities

Practice at problem-solving strategy

Problem Solving Strategies

Using a Conversion Factor

The 25 members of the Granite City Men Academy math club are planning a party. Cindy plans to bake her special cookies. She wants to have one cookie per member. She knows she has plenty of each ingredient except chocolate chips. How many ounces of chocolate chips does she need?

Think: What do I know about the problem?

Plan: What steps do I follow?

1. Multiply to find the number of cookies needed.
2. Divide the total number of cookies needed by the number of ounces of chocolate chips needed to find the conversion factor.
3. Multiply the number of ounces needed to find the number of ounces of chocolate chips.

Solve:

$$1. \quad 25 \times 1 = 25 \text{ cookies}$$

$$2. \quad 48 \frac{\text{oz}}{24} = 2 \text{ oz per cookie}$$

$$3. \quad 25 \times 2 = 50 \text{ oz of chocolate chips}$$

Extending the Problem: How many eggs are needed to make 75 cookies? Can you do a fraction of an egg?

Answer the word problems.

1. Cindy has only one cookie oven. It bakes 15 cookies. How many more will she need to bake for 75 cookies?
2. If Cindy has 30 ounces of chocolate chips, how many cookies can she bake?

30 **WORD PROBLEMS**

Ample review of current and past concepts

Word problems that develop good thinking abilities

Multiply.

13. $x^2y^3z^4$
14. $xy^2z^3w^4$
15. $xy^3z^4w^5$
16. $xy^2z^3w^4$
17. $xy^3z^4w^5$
18. $xy^2z^3w^4$

Circle the answers that are incorrect.

19. $x^2y^3z^4w^5$
20. $x^2 + y^2 = x^2y^2$
21. $x^2 + y^2 = x^2y^2$
22. $x^2 + 3x^2 = 4x^2$
23. $x^2 + y^2 = x^2y^2$
24. $x^2 + y^2 = x^2y^2$
25. $x^2 + y^2 = x^2y^2$
26. $x^2 + y^2 = x^2y^2$

Solve the word problems.

27. In a community, an average of 2,000 quarts of milk are consumed each day. Find the number of quarts consumed during a month that has 31 days. How many gallons are consumed during the month?
28. A truck's load made up of cans weighing 20 pounds each, is carrying a load of 11,000 pounds. How many cans are in the truck?

LESSON 53

Dividing Powers 3.8

To solve the problem $x^m \div x^n = x^p$ write out the problem in long form. Use cancellation to get the answer of x^p .

$$x^m \div x^n = \frac{x^m}{x^n} = \frac{\overbrace{x \cdot x \cdot x \cdot x \cdot x}^m}{\underbrace{x \cdot x \cdot x \cdot x \cdot x}_n} = x^p$$

To solve the problem $x^m \div x^n = x^p$ use the same procedure.

$$x^m \div x^n = \frac{x^m}{x^n} = \frac{\overbrace{x \cdot x \cdot x \cdot x \cdot x}^m}{\underbrace{x \cdot x \cdot x \cdot x \cdot x}_n} = x^p$$

Use these rules when dividing powers.

1. To divide powers that have the same base when the dividend exponent is greater than the divisor exponent, **subtract** the divisor exponent from the dividend exponent and keep the same base.
2. To divide powers that have the same base when the divisor exponent is greater than the dividend exponent, **add** the dividend exponent from the divisor exponent and write as a fraction having a numerator of 1 and a denominator of the same base and the obtained exponent.

18 Powers 187