PEARSON

Foundations and Pre-calculus Mathematics 10

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Your Book at a Glance

This book organizes your grade 10 course into three major topics. By focusing on one topic at a time, you can:

- spend more time on new concepts
- develop deeper understanding
- improve your recall of math concepts and strategies
- make connections across topics

MEASUREMENT

1. Measurement

2. Trigonometry
Project: Ramp It Up!
Cumulative Review: Chapters 1 and 2

Apply and extend what you know from previous grades as you investigate and solve real-world problems involving measurement.

ALGEBRA AND NUMBERS

3. Factors and Products

4. Roots and Powers
Project: Human Calculators
Cumulative Review: Chapters 1 – 4

Extend your work with patterning, algebra, and number concepts as you develop tools for solving new types of problems.

RELATIONS AND FUNCTIONS

5. Relations and Functions

6. Linear Functions

7. Systems of Linear Equations
Project: Exercise Mind and Body
Cumulative Review: Chapters 1 – 7

Build on what you have learned about algebra to study graphs and explore patterns.

Projects after Chapters 2, 4, and 7 have you solve applied problems while you reinforce your learning.

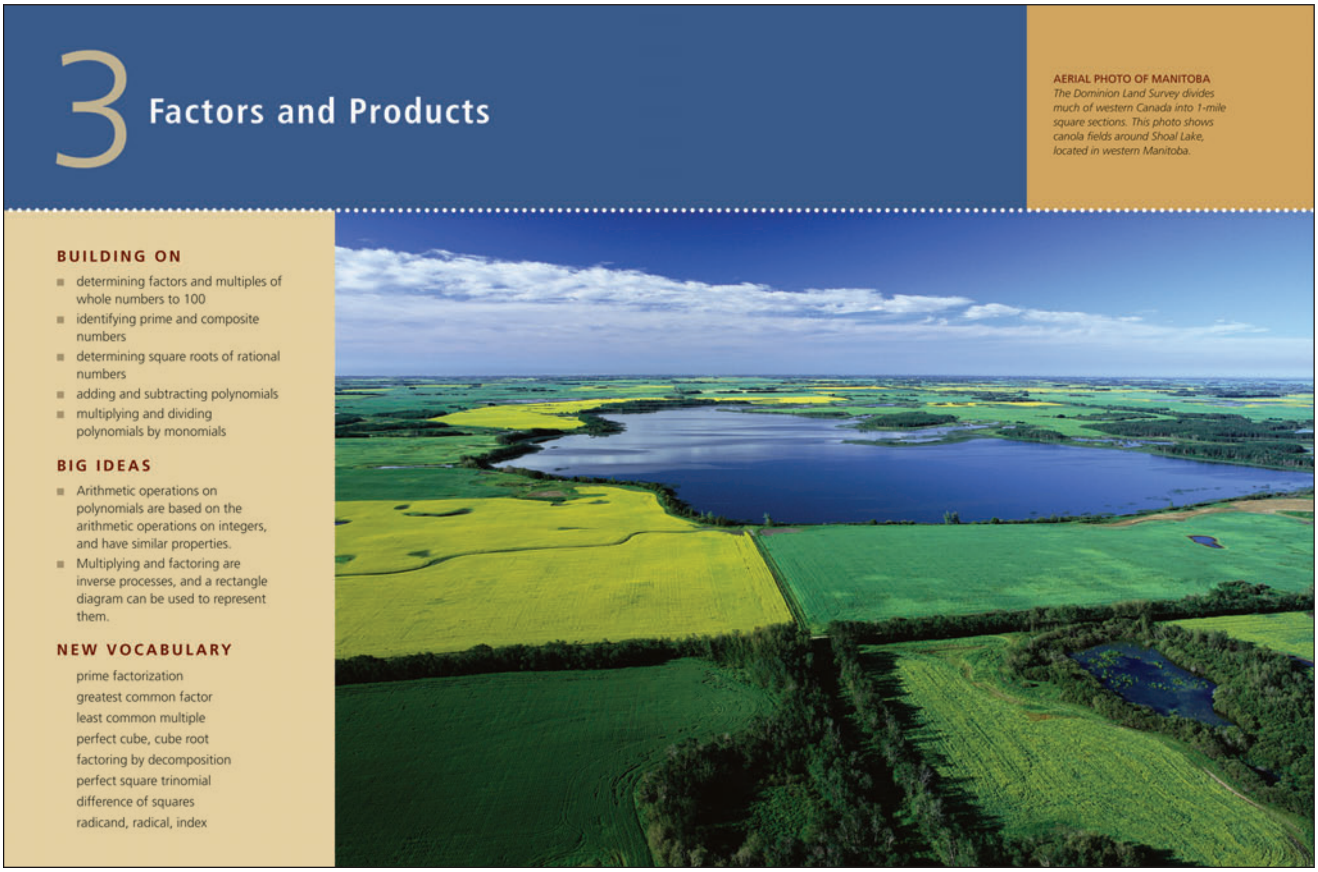
Cumulative Reviews cover all the content up to that point in the book.

Chapter Opener

Each chapter is organized around a few key **Big Ideas** of mathematics. Learning through the **Big Ideas**:

- lets you make sense of math topics
- helps you understand how the topics are related
- lets you learn more efficiently

Look for an illustration where the math of the chapter is applied. The caption describes the application.



3 Factors and Products

AERIAL PHOTO OF MANITOBA
The Dominion Land Survey divides much of western Canada into 1-mile square sections. This photo shows canola fields around Shoal Lake, located in western Manitoba.

BUILDING ON
- determining factors and multiples of whole numbers to 100
- identifying prime and composite numbers
- determining square roots of rational numbers
- adding and subtracting polynomials
- multiplying and dividing polynomials by monomials

BIG IDEAS
- Arithmetic operations on polynomials are based on the arithmetic operations on integers, and have similar properties.
- Multiplying and factoring are inverse processes, and a rectangle diagram can be used to represent them.

NEW VOCABULARY
prime factorization
greatest common factor
least common multiple
perfect cube, cube root
factoring by decomposition
perfect square trinomial
difference of squares
radicand, radical, index

Building on…
tells you what you need to know before learning new concepts.

Big Ideas…
tell you the learning goals for the chapter.

New Vocabulary…
identifies the new terms you will use as you work through the chapter.

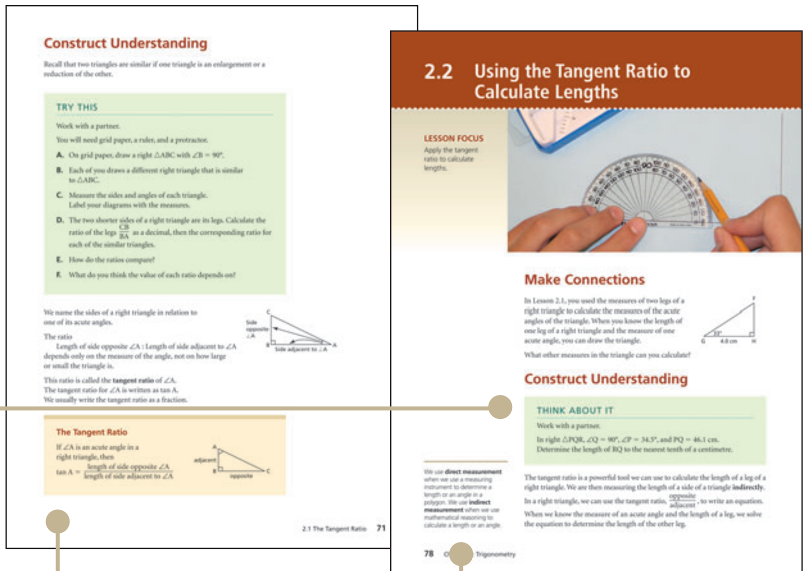
Numbered Lessons

Each lesson links to the **Big Ideas** stated at the start of the chapter.

Lesson Focus…
states the learning goal for the lesson.

Make Connections…
presents previous content, or an application, so you can make connections between what you already know, and what you are about to learn.

In each lesson you **Construct Understanding**, then apply what you have learned.



Try This or **Think About It…**
presents an activity or a problem that uses ideas from **Make Connections**.

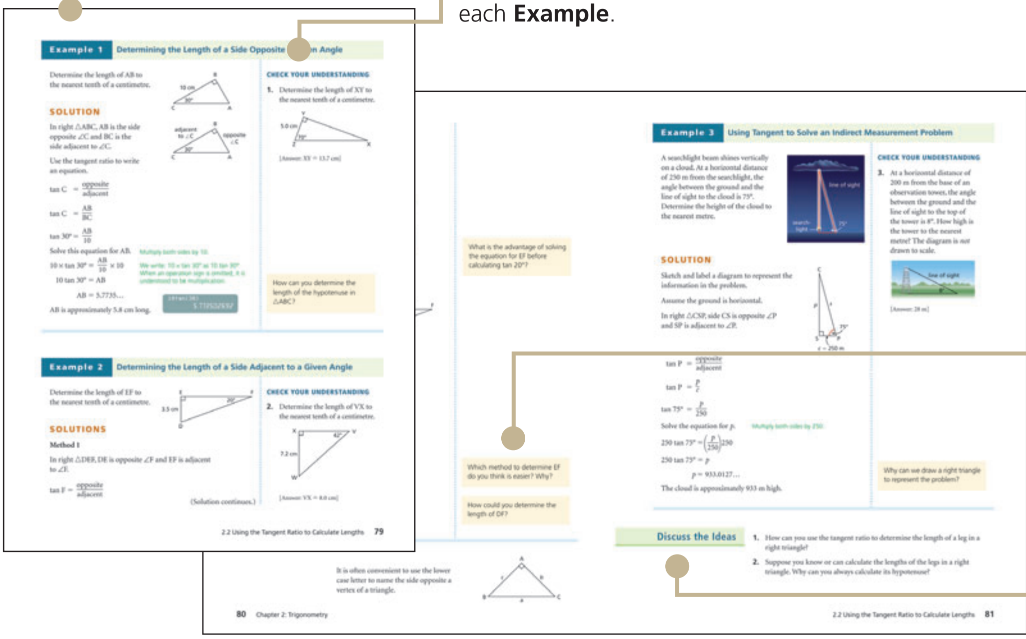
The activity or problem leads you to new concepts.

Colour boxes highlight important rules, formulas, or definitions.

Look for margin notes that define or explain a key term.

Examples…
model strategies for solving problems.

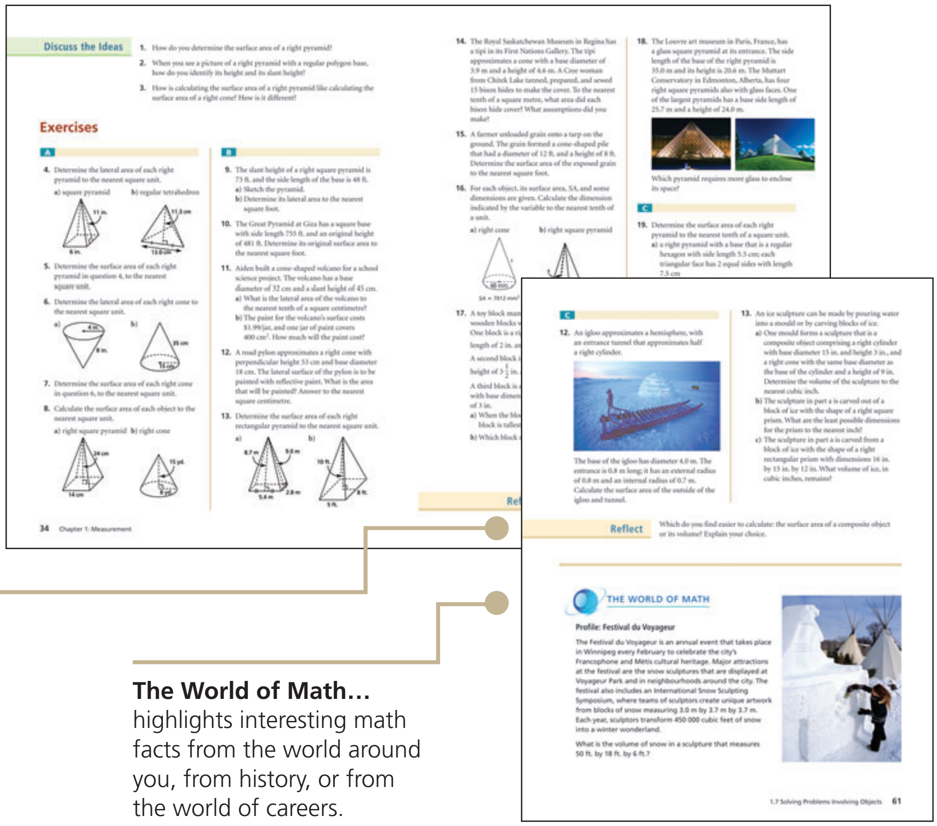
Check Your Understanding
gives you an opportunity for immediate reinforcement after each **Example**.



Margin questions extend your thinking, or ask you to think about key points.

Discuss the Ideas…
after working through the Examples, and before starting the Exercises.

Each lesson provides practice for the concepts you've been working with.



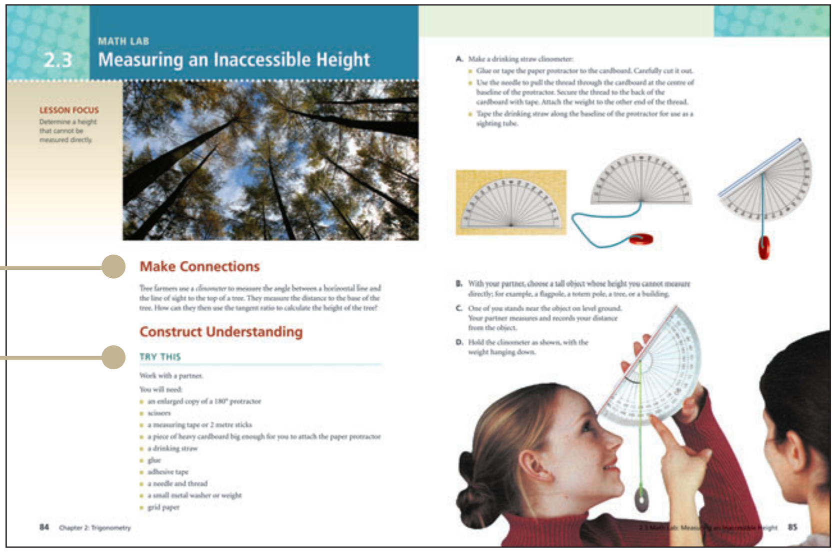
Exercises…
are organized by A/B/C levels of difficulty and allow you to check your skills and understanding.

Reflect…
prompts you to think about, and record, what you learned.

The World of Math…
highlights interesting math facts from the world around you, from history, or from the world of careers.

Math Lab Lessons

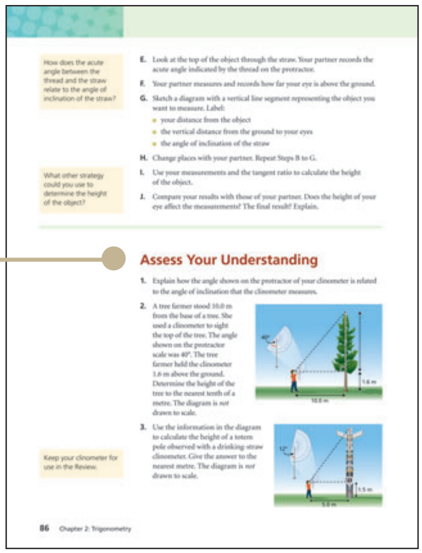
Math Lab lessons provide more time to explore the math using materials or technology.



As in other lessons, you'll find the **Lesson Focus** and **Make Connections**.

Try This… presents an extended activity.

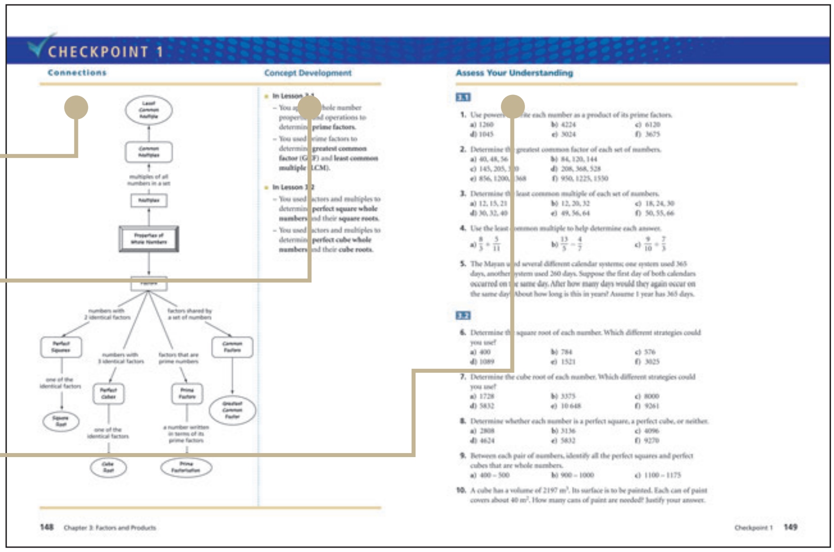
After completing **Try This**, check if you're on the right track.



Assess Your Understanding… provides a few key questions so you can apply what you learned in **Try This**.

Review and Study Features

Checkpoints occur at key intervals in the chapter, so you can reflect on Big Ideas as they've been developed. Checkpoints let you check your understanding so far.

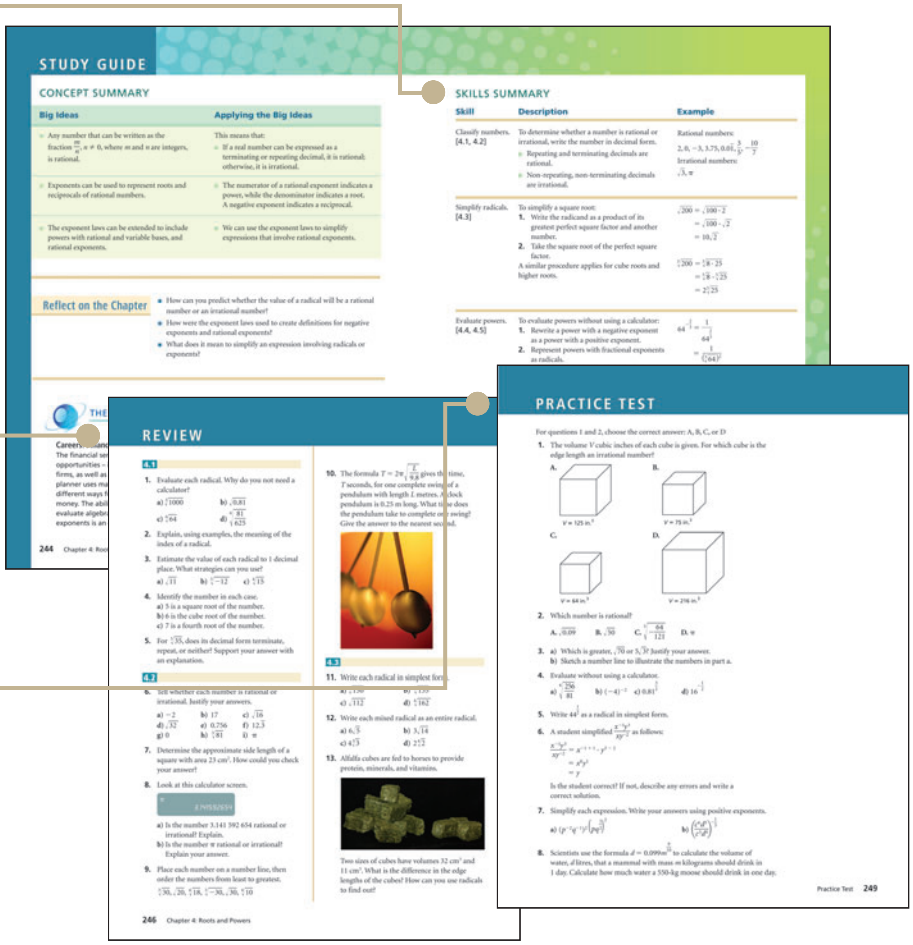


Connections…
gives a picture of what you've been learning.

Concept Development…
summarizes important content.

Assess Your Understanding…
provides questions related to each lesson.

At the end of each chapter:



Study Guide…
summarizes the important concepts and skills from the chapter.

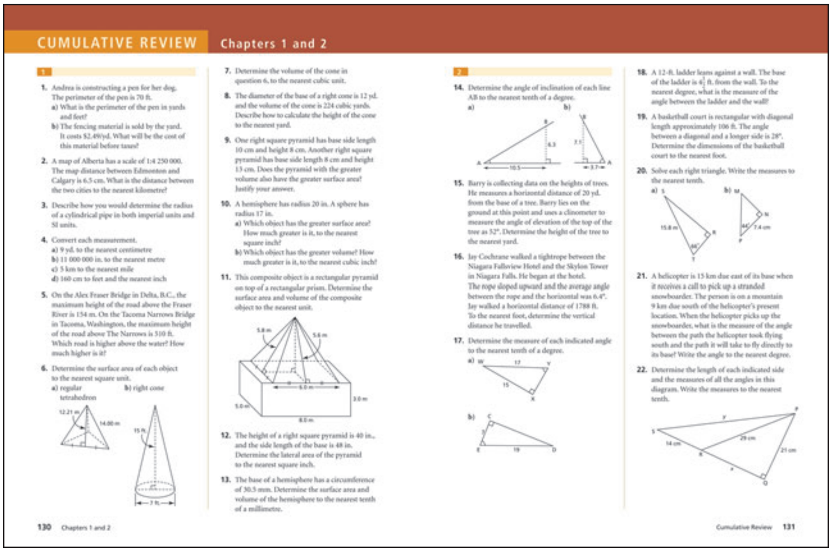
Review…
pages provide additional practice.

Practice Test…
lets you try a sample test before you take a class test.

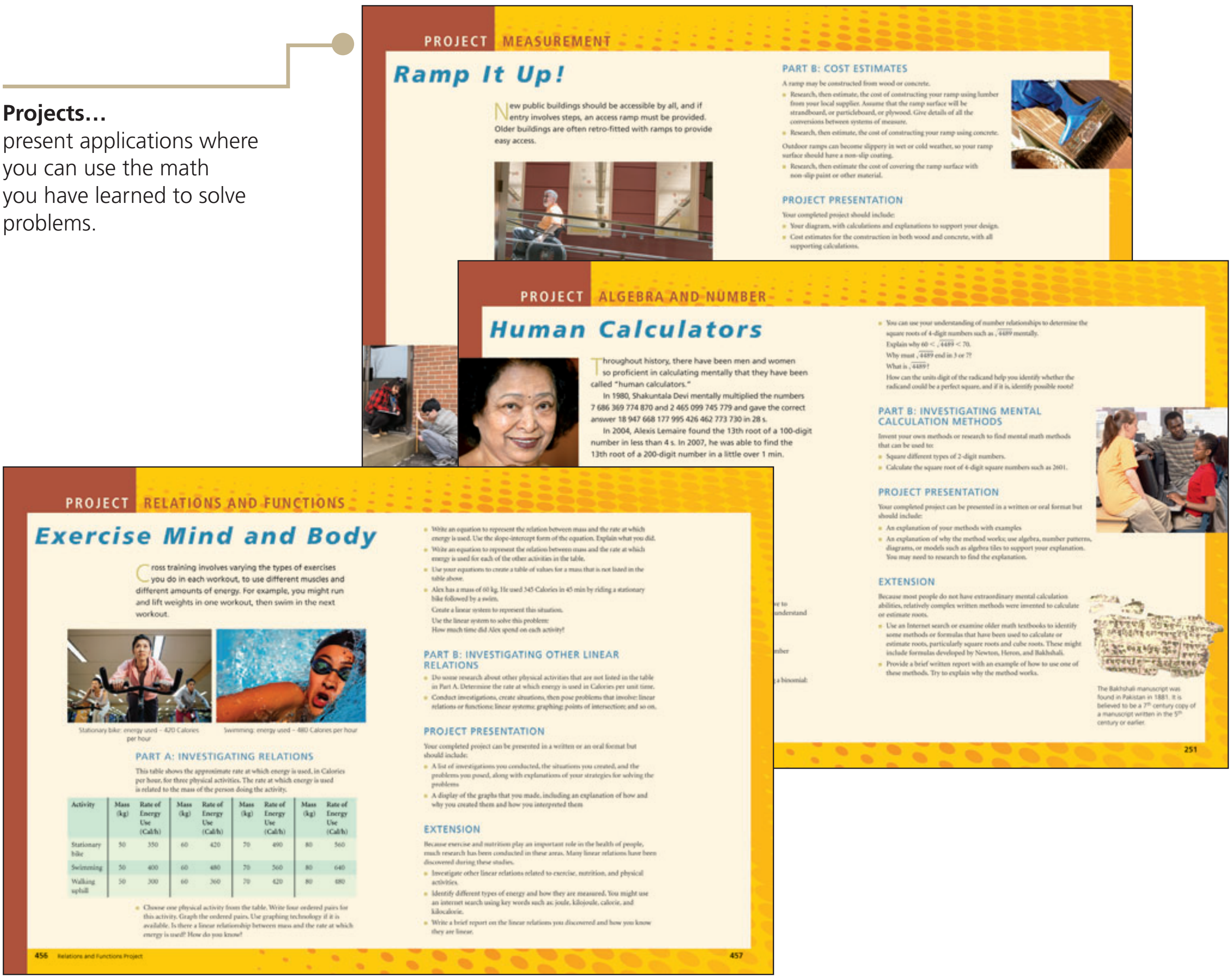
Cumulative Reviews and Projects

After 2 or 3 chapters, these book features support your learning.

Cumulative Reviews…
help you recall content from earlier in the course.



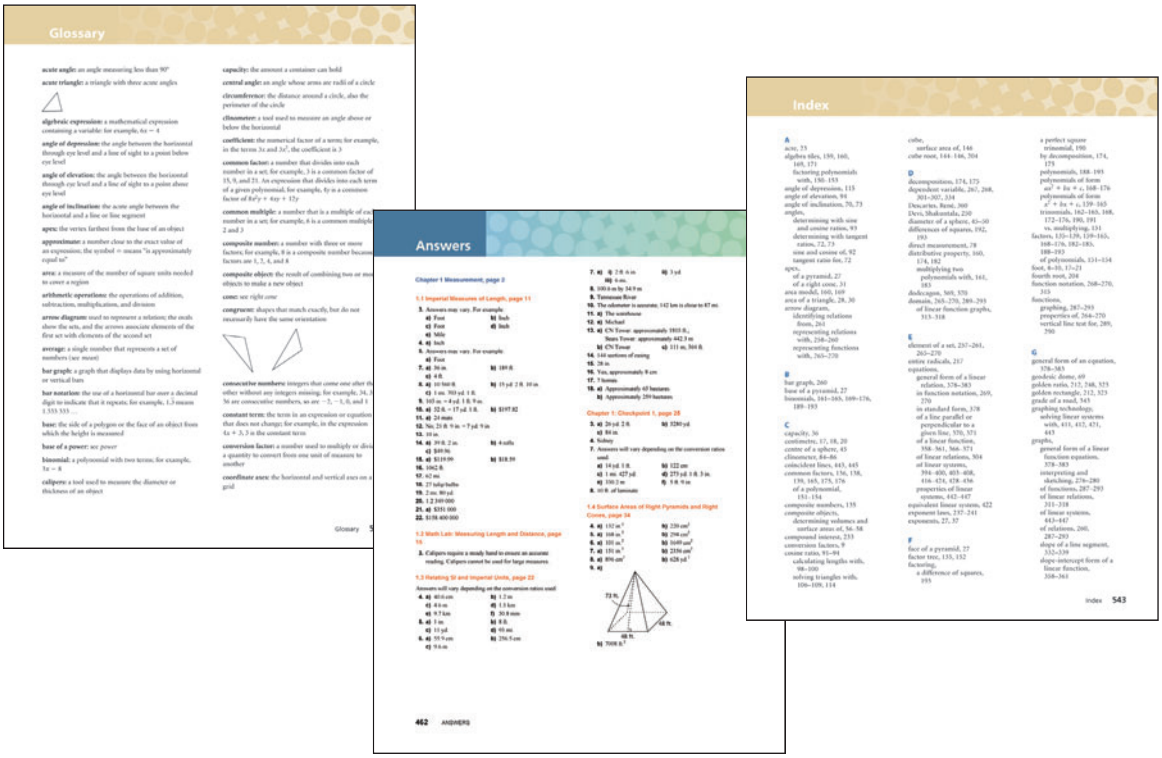
Projects…
present applications where you can use the math you have learned to solve problems.



End of Book Features

This book provides supports you can use to learn on your own, or with others. In addition to the Chapters, you'll find these tools for learning:

- A **Glossary** of key math terms, so you can check the meaning of new math vocabulary
- **Answers** to exercise questions so you can check your work
- An **Index** to let you locate where a topic is covered



Use these book features throughout the course. They will help you locate material, interpret examples, and check your work as you practise.