

6

HAWAII

Smarter Balanced

GRADE

7

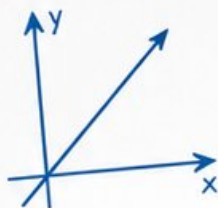
MATH

## PRACTICE TESTS



Standards Aligned  
**Problem Solving** For  
Comprehensive  
Assessment Programs

$$y = mx + b$$



$$2(x - 3) = 4x + 6$$

6 PRINTED TESTS



2 ONLINE TESTS



USE THESE TWO  
ADDITIONAL ONLINE  
PRACTICE TESTS  
FOR EXTRA REVIEW AFTER  
THE PRINTED TESTS  
IN THIS BOOK.



Build  
Confidence



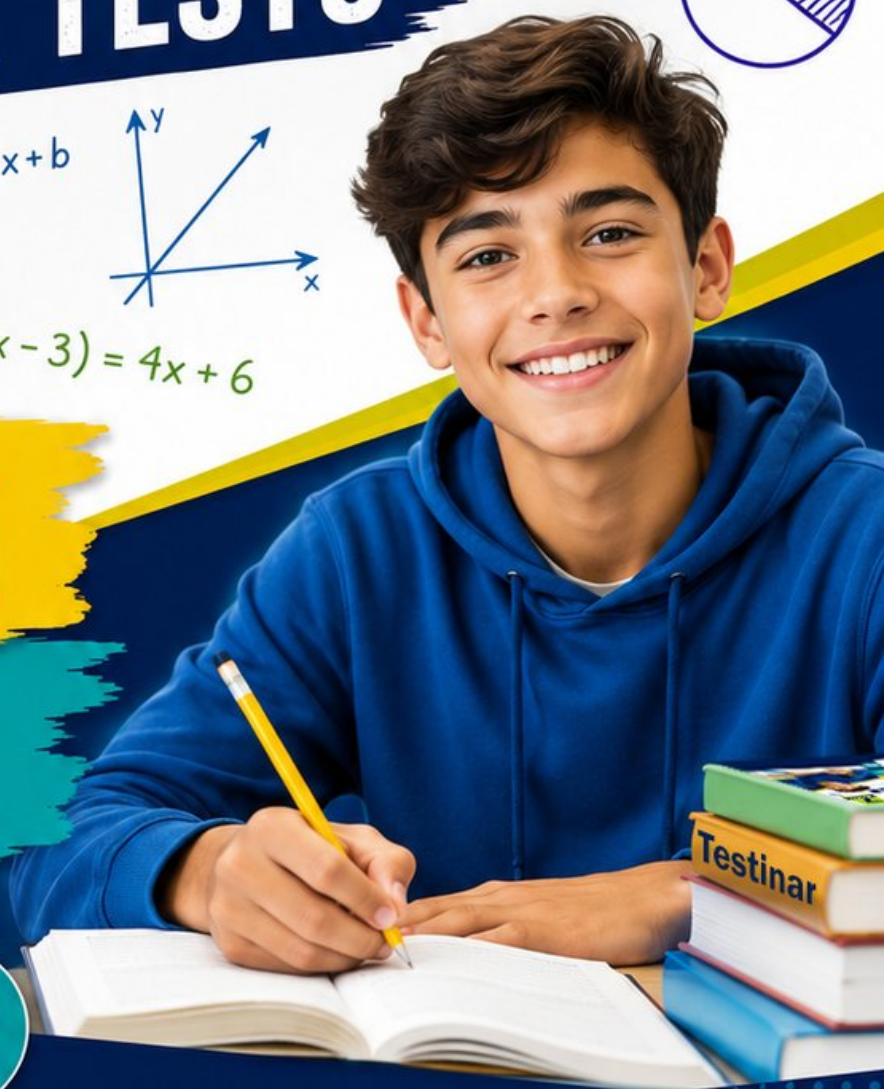
Strengthen  
Math Skills



Detailed Answers  
& Explanations

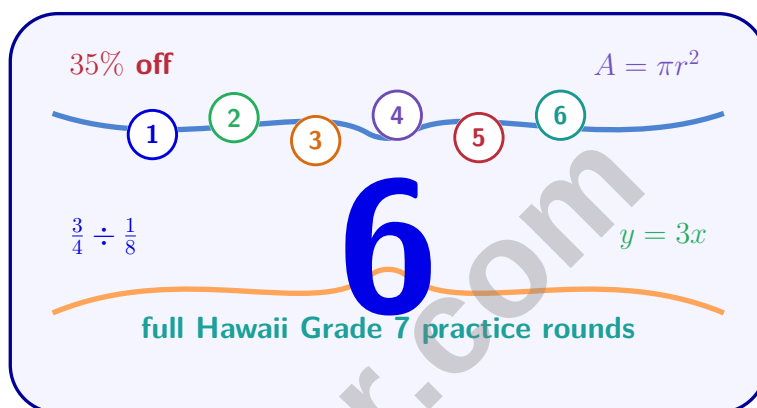


Improve Test  
Performance



# 6 Hawaii Smarter Balanced Grade 7 Math Practice Tests

*Standards-Aligned Practice with Review, Answer Keys, and Explanations*



Six complete 40-question Grade 7 Smarter Balanced practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

**Jay Daie and Reza Nazari**



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# Welcome, Hawaii Grade 7 Problem Solver!

Six focused rounds for sharper Smarter Balanced math thinking

This book gives you six full Grade 7 Smarter Balanced math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, and explain your thinking with care.

## Your Hawaii Practice Promise

I will read every question carefully, choose a strategy that fits, write enough work to prove my answer, and use corrections as training for the next test.

Read

Model

Verify

## How to Use This Book

A six-session plan for confident Grade 7 review

1. **Warm up with the review pages.** Notice the big ideas before starting the tests.
2. **Complete one test at a time.** Treat each 40-question round like a real practice session.
3. **Show your reasoning.** Jot a proportion, equation, diagram, number line, or quick estimate when it helps.
4. **Correct actively.** Rework missed items before reading the explanation.
5. **Choose the next target.** After each test, name one skill and one habit to improve.

**Hawaii review rhythm:** Work a test, score it, study your misses, then come back ready for the next round with one clear goal.



## What Is Inside?

Six Smarter Balanced tests, 240 questions, and a complete review path

| Part         | What You Will Practice                                                                             |
|--------------|----------------------------------------------------------------------------------------------------|
| Tests 1–3    | Proportional relationships, unit rates, percents, rational-number operations, and careful reading. |
| Tests 4–6    | Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving.    |
| Answer Pages | Compact keys and explanations that show why each answer works.                                     |

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



Scan me!  
For more practice  
& answers

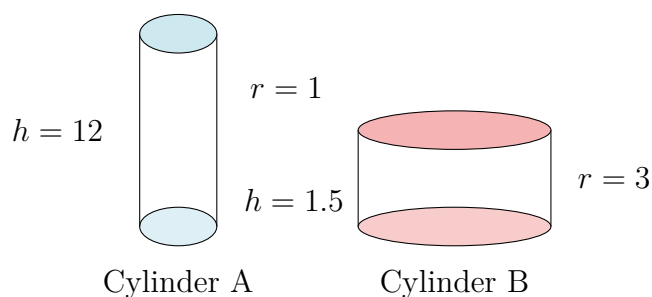
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- 1) A rectangular prism has dimensions  $3\text{ cm} \times 4\text{ cm} \times 6\text{ cm}$ . Another prism has half the dimensions of the first. What is the volume of the smaller prism?
- ☐ A.  $9\text{ cm}^3$  ☐ C.  $36\text{ cm}^3$   
☐ B.  $18\text{ cm}^3$  ☐ D.  $72\text{ cm}^3$
- 2) Two quantities are shown below. Which represents a non-proportional relationship?
- ☐ A. Number of hours worked at hourly wage and earnings ☐ C. The number of items bought at constant price and total cost  
☐ B. The side of a square and its area ☐ D. A person's age and height (within normal range)
- 3) What is  $x$  if  $9x - 7 = 47$ ?
- ☐ A.  $x = 3$  ☐ C.  $x = 6$   
☐ B.  $x = 5$  ☐ D.  $x = 9$
- 4) A rectangle is inscribed in a circle. One side is 8 cm and an adjacent side is 6 cm. Is there a unique rectangle that satisfies these conditions?
- ☐ A. Yes, exactly one ☐ C. No, but there are exactly two  
☐ B. No, infinitely many ☐ D. No rectangle fits these conditions



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5)

Cylinder A has  $r = 1$  and  $h = 12$ . Cylinder B has  $r = 3$  and  $h = 1.5$ . Use  $\pi \approx 3.14$ . Which statement is true?

- ☐ A. Cylinder A has the greater volume    ☐ D. Volume cannot be compared without units  
☐ B. Cylinder B has the greater volume  
☐ C. Both cylinders have the same volume

6) A school cafeteria manager wants to know which vegetables students prefer. She surveys only students who buy lunch on a given day. What population is she actually *not* surveying?

- ☐ A. Students who eat no vegetables    ☐ C. Students who buy lunch every day  
☐ B. Students who bring lunch from home    ☐ D. All students in the school

7) A running club tracks weekly mileage for two runners over 5 weeks:

| Runner | 5-Week Data       | Conclusion           |
|--------|-------------------|----------------------|
| Alex   | 10, 12, 11, 13, 9 | Mean = 11, MAD = 1.2 |
| Blake  | 5, 20, 10, 15, 10 | Mean = 12, MAD = 4.0 |

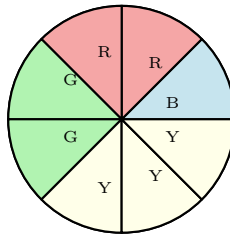
Which interpretation is correct?

- ☐ A. Alex is more disciplined (consistent 11 mi/week)    ☐ C. Both runners cover identical weekly distances  
☐ B. Blake averages more miles per week    ☐ D. Blake is more consistent



- 8) A dot plot shows the number of hours 10 students studied for a math test. The data is: 1, 1, 1, 2, 2, 2, 2, 3, 4, 5. What is the median?

- ☐ A. 1 hour                      ☐ C. 3 hours  
☐ B. 2 hours                    ☐ D. 5 hours



9)

A spinner has 8 equal sections with colors: Blue (1), Red (2), Green (2), Yellow (3). What is the probability of spinning Green?

- ☐ A.  $\frac{1}{8}$                               ☐ C.  $\frac{3}{8}$   
☐ B.  $\frac{1}{4}$                               ☐ D.  $\frac{3}{10}$

- 10) A color (Red or Blue) and a size (Small, Medium, Large) are chosen for a T-shirt. How many different T-shirt combinations are possible?

- ☐ A. 3                                  ☐ C. 6  
☐ B. 5                                  ☐ D. 8

- 11) A bag contains 2 red, 3 blue, and 5 green marbles. If a marble is drawn twice WITHOUT replacement, which of the following is true?

- ☐ A. Each draw has the same probability    ☐ C. Both events are independent  
☐ B. The second draw depends on the first draw    ☐ D.  $P(\text{second draw}) = P(\text{first draw})$



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For more practice  
& answers

1) Solve for  $x$ :  $5(2x - 1) = 45$

☐ A.  $x = 6$

☐ C.  $x = 5$

☐ B.  $x = 4.5$

☐ D.  $x = 7$



2)

Based on the savings progress chart, how much money is being saved each month?

☐ A. \$200

☐ C. \$300

☐ B. \$500

☐ D. \$250

3)

| Simulated Roll | 1  | 2  | 3  | 4  |
|----------------|----|----|----|----|
| Frequency      | 48 | 52 | 45 | 55 |

A spinner with 4 equal sections is spun 200 times to estimate probabilities. Which two sections have relative frequencies closest to the theoretical probability of 0.25?

☐ A. Sections 1 and 2

☐ C. Sections 1 and 3

☐ B. Sections 2 and 4

☐ D. Sections 3 and 4



- 4) A letter is drawn from the word MATH, and then a number is chosen from 1 to 5. How many outcomes are in the sample space?

Letters: M, A, T, H    Numbers: 1, 2, 3, 4, 5

- |                                |                                |
|--------------------------------|--------------------------------|
| <input type="checkbox"/> A. 9  | <input type="checkbox"/> C. 20 |
| <input type="checkbox"/> B. 15 | <input type="checkbox"/> D. 25 |
- 5) A spinner is divided into 8 equal sections numbered 1 through 8. What is the probability of spinning an odd number OR a prime number?
- |                                                             |                                                          |
|-------------------------------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> A. $\frac{4}{8}$ (only odd)        | <input type="checkbox"/> C. $\frac{7}{8}$                |
| <input type="checkbox"/> B. $\frac{6}{8}$ (missing overlap) | <input type="checkbox"/> D. $\frac{8}{8}$ (all outcomes) |
- 6) A quality control test found that out of 750 items produced, 12 were defective. What is the experimental probability that an item is defective?
- |                                              |                                            |
|----------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> A. $\frac{12}{750}$ | <input type="checkbox"/> C. 0.12           |
| <input type="checkbox"/> B. $\frac{3}{125}$  | <input type="checkbox"/> D. $\frac{1}{12}$ |
- 7) A nutritionist estimated 2200 calories per day but the actual need was 2000 calories. What is the percent error?
- |                                 |                                   |
|---------------------------------|-----------------------------------|
| <input type="checkbox"/> A. 10% | <input type="checkbox"/> C. 200%  |
| <input type="checkbox"/> B. 11% | <input type="checkbox"/> D. 90.9% |
- 8) Expand:  $-1(2x - 8)$
- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| <input type="checkbox"/> A. $-2x - 8$ | <input type="checkbox"/> C. $-2x + 8$ |
| <input type="checkbox"/> B. $2x - 8$  | <input type="checkbox"/> D. $2x + 8$  |



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For more practice  
& answers

- 1) A loan requires you to pay back a total of \$6500 in simple interest over 5 years. If the principal is \$5000, what is the annual interest rate?
- ☐ A. 12% ☐ C. 10%
- ☐ B. 8% ☐ D. 6%
- 2) A meal delivery service charges a subscription fee of \$35 and \$4.99 per meal. If the total monthly cost is \$84.85, which equation represents  $m$ , the number of meals?
- ☐ A.  $35m + 4.99 = 84.85$  ☐ C.  $35(m + 4.99) = 84.85$
- ☐ B.  $4.99 + 35m = 84.85$  ☐ D.  $4.99m + 35 = 84.85$
- 3) If a scale drawing has a scale of 2 : 5, which of the following is true?
- ☐ A. The drawing is smaller than the actual object. ☐ C. The drawing and the object are the same size.
- ☐ B. The drawing is larger than the actual object. ☐ D. Cannot be determined without more information.
- 4) Two similar triangles have corresponding sides of 12 cm and 18 cm. If the smaller triangle has an area of 40 square cm, what is the area of the larger triangle?
- ☐ A. 60 square cm ☐ C. 120 square cm
- ☐ B. 90 square cm ☐ D. 180 square cm
- 5) If a circle's circumference is  $\frac{132}{7}$  meters, using  $\pi \approx \frac{22}{7}$ , what is its radius?
- ☐ A. 2 m ☐ C. 4 m
- ☐ B. 3 m ☐ D. 6 m



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& answers

- 6) A number cube is labeled with the numbers 1, 2, 2, 3, 3, 3. When rolled, what is the probability of rolling a 3?

☐ A.  $\frac{1}{3}$   
☐ B.  $\frac{1}{2}$

☐ C.  $\frac{2}{3}$   
☐ D.  $\frac{1}{6}$

- 7) Which of the following represents the complete sample space for flipping a coin and choosing a number from  $\{1, 2, 3\}$ ?

$\{H1, H2, H3, T1, T2, T3\}$

☐ A. 3 outcomes  
☐ B. 4 outcomes

☐ C. 5 outcomes  
☐ D. 6 outcomes

- 8) A video game costs \$50. With a 12% sales tax, the total cost is  $50 \times 1.12$ . What does 1.12 represent?

☐ A. The percent of tax

☐ C. The discount

☐ B. The percent of the original price  
☐ D. The final price paid (including tax)

- 9) A simulation estimates the probability of an event using a spinner with 5 equal sections. After 500 spins, one section appears 96 times. What is the estimated probability for that section? (Express as a decimal rounded to the nearest hundredth.)



## Hawaii Smarter Balanced Grade 7 Practice Test Answer Keys

**How to use this section with a Grade 7 student:**

1. check the answer first and circle any item that needs another look
2. retry the problem with fresh work before reading the explanation
3. write one short lesson learned from each missed or guessed item

**A strong review routine turns every correction into a sharper plan for the next Hawaii Smarter Balanced practice test.**



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& answers

## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (7.G.4-7.G.6) Original volume =  $3 \times 4 \times 6 = 72 \text{ cm}^3$ . When all dimensions are halved, volume is divided by  $2^3 = 8$ . Smaller prism volume =  $72/8 = 9 \text{ cm}^3$ .
- 2) **Choice D is correct.** (7.RP.1-7.RP.3) Age and height do not have constant ratio (e.g., doubling age doesn't double height). Options B, C, D all have  $y = kx$  form.
- 3) **Choice C is correct.** (7.EE.3-7.EE.4) Add 7:  $9x = 54$ . Divide by 9:  $x = 6$ .
- 4) **Choice A is correct.** (7.G.1-7.G.5) Given two adjacent sides of a rectangle (8 cm and 6 cm), the rectangle is completely determined. The circle's radius is half the diagonal length  $\sqrt{8^2 + 6^2}/2 = 5 \text{ cm}$ .
- 5) **Choice B is correct.** (7.G.4-7.G.6) A:  $V = \pi r^2 h = 3.14 \times (1)^2 \times 12 = 3.14 \times 1 \times 12 = 37.68 \text{ units}^3$ . B:  $V = 3.14 \times (3)^2 \times 1.5 = 3.14 \times 9 \times 1.5 = 42.39 \text{ units}^3$ . Cylinder B is greater.
- 6) **Choice B is correct.** (7.SP.1-7.SP.4) By surveying only lunch-buyers that day, she misses students who bring lunch from home. This creates a non-response bias and an unrepresentative sample.
- 7) **Choice A is correct.** (7.SP.1-7.SP.4) Alex: mean 11, MAD 1.2 (very tight clustering). Blake: mean 12, MAD 4.0 (highly variable). Despite Blake's slightly higher average, Alex's low MAD shows consistent weekly effort, indicating greater discipline.
- 8) **Choice B is correct.** (7.SP.1-7.SP.4) With 10 data points, the median is the average of the 5th and 6th values. Ordered: 1, 1, 1, 2, 2, 2, 3, 4, 5. The 5th and 6th values are both 2, so median = 2 hours.
- 9) **Choice B is correct.** (7.SP.5-7.SP.8) Green sections: 2 out of 8.  $P(\text{green}) = \frac{2}{8} = \frac{1}{4}$ .
- 10) **Choice C is correct.** (7.SP.5-7.SP.8) Colors: 2; sizes: 3. By the counting principle:  $2 \times 3 = 6$  combinations.
- 11) **Choice B is correct.** (7.SP.5-7.SP.8) Without replacement, the total number of marbles changes, making the second draw dependent on the first.
- 12) **The correct answer is (6, -4).** (7.G.1-7.G.5) The translation vector is found by subtracting the starting point from the ending point:  $(4, -1) - (-2, 3) = (4 - (-2), -1 - 3) = (4 + 2, -4) = (6, -4)$ .
- 13) **Choice A is correct.** (7.SP.1-7.SP.4) Nine values: 14, 17, 21, 25, 28, 32, 34, 36, 39. Lower half: 14, 17, 21, 25 (4 values). Q1 is median of lower half:  $(17 + 21)/2 = 19$ , which falls between 17 and 21.
- 14) **Choice B is correct.** (7.SP.6) Face 3:  $\frac{79}{500} = 0.158$ . Theoretical:  $\frac{1}{6} \approx 0.167$ . Difference:  $|0.158 - 0.167| \approx 0.009$ , smallest among all faces.
- 15) **Choice A is correct.** (7.SP.5-7.SP.8) Total marbles =  $8 + 12 = 20$ . Probability =  $\frac{\text{red}}{\text{total}} = \frac{8}{20}$ .
- 16) **Choice A is correct.** (7.SP.1-7.SP.4)  $\frac{15}{50} = 0.30$ ;  $\frac{12}{40} = 0.30$ ;  $\frac{18}{72} = 0.25$ . First and second both equal 30%.
- 17) **Choice D is correct.** (7.RP.3) Percent error =  $\frac{|1.2 - 1.5|}{1.5} \times 100\% = \frac{0.3}{1.5} \times 100\% = 20\%$ .
- 18) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute -3:  $-3(x) - 3(-6) = -3x + 18$ . Negative times negative is positive.
- 19) **Choice D is correct.** (7.RP.1-7.RP.3) Divide actual by scale ratio:  $30 \text{ m} \div 3 \text{ m per cm} = 10 \text{ cm}$ .
- 20) **The correct answer is A, C.** (7.G.1-7.G.5) A: Two triangles with the same three side lengths are congruent by SSS. C: Two triangles with two equal sides and an equal included angle are congruent by SAS. B is incorrect because AAA determines similarity, not congruence (triangles can be different sizes). D is incorrect because two angles and two separate sides (not necessarily properly positioned) do not guarantee congruence.
- 21) **Choice C is correct.** (7.NS.1b) Net change = gain + loss =  $25 + (-17) = 8$ . A net gain of 8 points.
- 22) **Choice B is correct.** (7.NS.1-7.NS.3)  $7 - (-2) - 5 = 7 + 2 - 5 = 9 - 5 = 4$ . Convert the subtraction of a negative first.
- 23) **Choice A is correct.** (7.EE.1) Group like terms by variable:  $(5x - 2x) + (3y + 4y) = (5 - 2)x + (3 + 4)y = 3x + 7y$ .
- 24) **The correct answer is 7.** (7.G.1-7.G.5) Scale factor =  $\frac{14}{10} = 1.4$ . Height =  $5 \times 1.4 = 7 \text{ ft}$ .
- 25) **Choice C is correct.** (7.RP.3) 35% of 400 is  $0.35 \times 400 = 140$ .
- 26) **Choice D is correct.** (7.RP.3) Tax =  $0.07 \times 16 = \$1.12$ . Total =  $16 + 1.12 = \$17.12$ .
- 27) **Choice D is correct.** (7.EE.1-7.EE.2) Substitute:  $2(5 - 3) + 5 = 2(2) + 5 = 4 + 5 = 9$ .
- 28) **The correct answer is 44.** (7.G.4-7.G.6)  $C = 2\pi r = 2 \times \frac{22}{7} \times 7 = 2 \times 22 = 44 \text{ cm}$ .



Scan me!  
For more practice  
& answers

## Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 6 full Grade 7 practice tests, and that repeated effort matters. ★

### Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

**Grade 7 test-day tip:** When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

If you want to share something or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com).

**Jay Daie**

Your Persistence Coach

# PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **6** full-length Math practice tests and **2** online tests to help Grade 7 students build confidence, strengthen skills, and excel on standardized assessments.

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### Improve Understanding

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- ✓ Expressions & Equations
- ✓ Geometry
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- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
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