

# 10

# Virginia SOL

GRADE  
**6**  
MATH

## PRACTICE TESTS

**Standards-Aligned Review**  
**Mixed Practice & Answer Key**



### 10 PRINTED TESTS

Realistic practice to build confidence and mastery



### 2 ONLINE TESTS

Extra practice for continued success



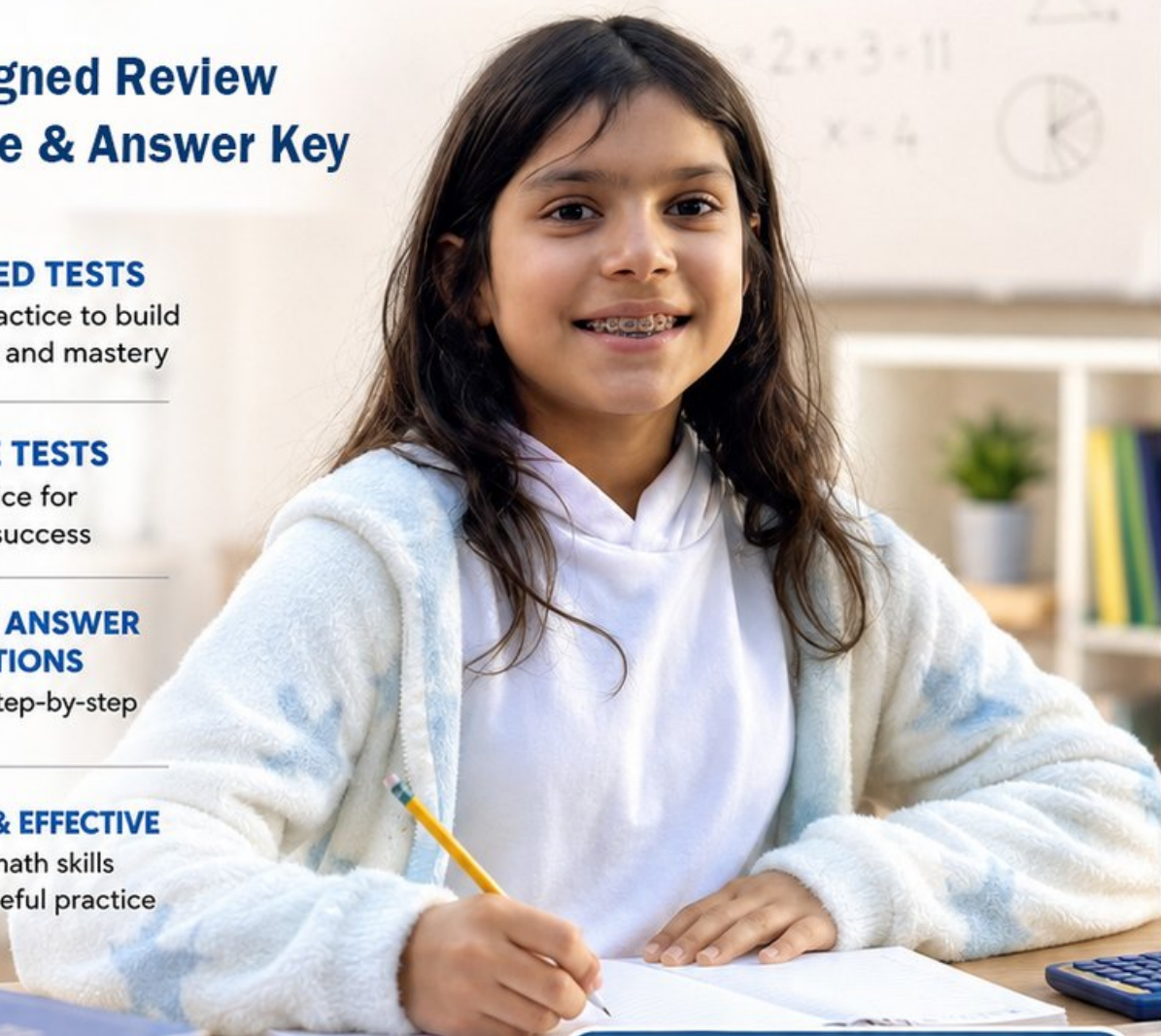
### DETAILED ANSWER EXPLANATIONS

Learn with step-by-step solutions



### FOCUSED & EFFECTIVE

Target key math skills with purposeful practice



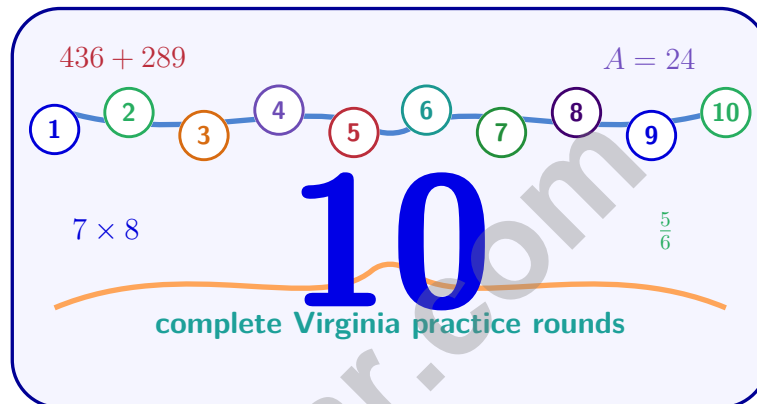
**10** PRINTED TESTS  
**+ 2** ONLINE TESTS

Use these two additional online practice tests for extra review after the printed tests in this book.

**PRACTICE • REVIEW • SUCCEED**

# 10 Virginia SOL Grade 6 Math Practice Tests

*Standards-Aligned Careful, Evidence-Based Reasoning for Standards of Learning*



Ten complete 40-question Grade 6 practice rounds for SOL, with ratios, rational numbers, expressions, equations, geometry, statistics, answer keys, and clear explanations for every item.

**Jay Daie and Reza Nazari**



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# Welcome, Virginia Math Explorer!

Ten steady rounds on an Old Dominion review route

This book gives you ten full Grade 6 practice tests for SOL. Each round uses historic trails, blue ridges, and precise classroom thinking as a fresh mental backdrop while you read closely, choose a smart strategy, show your work, and check whether your answer makes sense.

## Your Virginia Practice Promise

Support every answer with work you can point to. I will slow down for the question, circle what matters, solve one step at a time, and use mistakes as clues for getting stronger.

Read

Plan

Check

## How to Use This Book

A ten-session routine for careful, evidence-based reasoning

1. **Preview the skills.** Read the quick review pages before the first test.
2. **Take one test at a time.** Work in a quiet place and answer all 40 questions.
3. **Mark your confidence.** Put a small star beside problems you solved with a strong plan.
4. **Check, then retry.** For missed questions, try the problem again before reading the explanation.
5. **Track your next move.** Use the growth log to name one habit and one skill for the next test.

**Virginia review rhythm:** Test one day, correct carefully the next day, then return for the next round when your corrections feel clear.



## What Is Inside?

Ten SOL tests, 400 questions, and a full review path

Part	What You Will Practice
Tests 1–3	Warm-up rounds for ratios, rational numbers, operations, and careful reading.
Tests 4–6	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Tests 7–9	Stamina rounds for mixed review, neat work, and flexible strategy choices.
Test 10	Final Virginia round to show growth across the whole book.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Careful, evidence-based reasoning means recognizing the skill even when the next question changes topic.



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For more practice  
& answers

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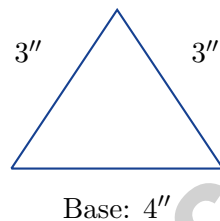
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5) At a car dealership, for every 7 cars sold, 2 are red. Which statement describes the part-to-whole ratio of red cars to all cars sold?

- A. The ratio of red cars to non-red cars is 2 : 5.
- B. The ratio of red cars to all cars sold is 2 : 9.
- C. The ratio of all cars sold to red cars is 7 : 2.
- D. The ratio of red cars to all cars sold is 2 : 7.

6) A scale drawing of a triangle is shown with all sides labeled. The scale is 1 inch = 2 feet.



What is the actual length of the base of the triangle?

- A. 4 feet
- B. 6 feet
- C. 8 feet
- D. 12 feet
- 7) What is  $\frac{2}{9} \div \frac{4}{9}$ ?
- A.  $\frac{8}{81}$
- B.  $\frac{1}{2}$
- C.  $\frac{6}{9}$
- D. 2



- 8) A bakery made a stem-and-leaf plot of daily cookie sales: Stem 2: Leaf 1, 3, 5, 8  
Stem 3: Leaf 0, 4, 7 Stem 4: Leaf 2, 6

What is the MODE (most frequent value) of the cookie sales?

- A. 30                                       C. 42  
 B. 25                                       D. No mode

9)



The diagram shows coral and green counters. What is the ratio of green to coral?

- A. 4 : 3                                       C. 7 : 4  
 B. 7 : 3                                       D. 3 : 4

- 10) A painter paints 48 square feet in 2 hours. What is the rate in square feet per hour?

- A. 20 square feet per hour                                       C. 50 square feet per hour  
 B. 96 square feet per hour                                       D. 24 square feet per hour

- 11) A water truck fills a pool at a rate of 50 gallons per minute. If the pool needs 2000 gallons, how many minutes will it take to fill?

- A. 20 minutes                                       C. 40 minutes  
 B. 30 minutes                                       D. 50 minutes



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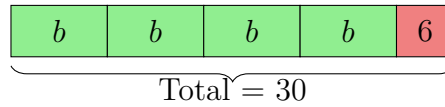
1) Which expression is equivalent to  $6(3y - 2)$ ?

A.  $18y - 12$

C.  $3y - 12$

B.  $9y - 2$

D.  $18y - 2$



2)

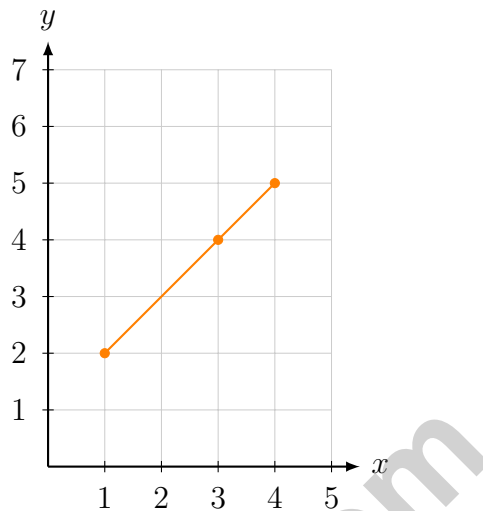
The bar model represents  $4b + 6 = 30$ . Find  $b$ .

3) Write  $\frac{3}{4}$  as a decimal.



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- 4) The graph shows a linear relationship between two quantities.



Which equation matches this graph?

- A.  $y = x + 1$        C.  $y = \frac{4}{3}x + \frac{2}{3}$   
 B.  $y = 2x - 1$        D.  $y = x + 2$
- 5) A rectangle has area 24 square units and length 8 units. What is its perimeter?
- A. 22 units       C. 16 units  
 B. 20 units       D. 24 units
- 6) A sports analyst wants to study the heights of basketball players in a league. She measures 12 players. What is the population?
- A. The 12 players she measured       C. All people who play sports  
 B. The height measurements she recorded       D. All basketball players in the league



- 1) Box X: 5 ft by 2 ft by 3 ft. Box Y: 4 ft by 2 ft by 4 ft. Which box has greater volume and by how much?
- A. Box X by  $1 \text{ ft}^3$                        C. Box X by  $2 \text{ ft}^3$   
 B. Box Y by  $1 \text{ ft}^3$                        D. Box Y by  $2 \text{ ft}^3$
- 2) Write  $\frac{4}{5}$  as a decimal and then as a percent.
- A. 0.45 and 45%                       C. 0.04 and 4%  
 B. 1.25 and 125%                       D. 0.8 and 80%
- 3) A car depreciates in value by 15% each year. If it is worth \$20,000 now, what will it be worth after one year?
- A. \$15,000                       C. \$17,000  
 B. \$16,000                       D. \$18,000
- 4) A bus travels at an average speed of 45 miles per hour for 3 hours. How far does it travel?
- A. 120 miles                       C. 150 miles  
 B. 135 miles                       D. 165 miles
- 5) A road sign shows the next rest stop is 3 kilometers away. How many meters away is the rest stop?
- A. 300 meters                       C. 30,000 meters  
 B. 0.3 meters                       D. 3,000 meters



6) Find the LCM of 5 and 9.

A. 45

C. 40

B. 35

D. 15

7) Factor  $12 + 20$  using the distributive property.

A.  $4(3 + 5)$

C.  $3(4 + 20)$

B.  $2(6 + 10)$

D.  $5(2 + 4)$

8) A bank account shows a balance of  $-\$42$ . What does this mean?

A. The account has \$42 in it

C. The account earned \$42 in interest

B. The account has zero dollars

D. The account is overdrawn by \$42

9) What is the value of  $|-12|$ ?

A. 12

C.  $-12$

B. 0

D. 24

10) A proportional relationship is shown on a graph. Two points on the line are  $(3, 21)$  and  $(7, 49)$ . Find the constant of proportionality (the unit rate).



11) Which pair of numbers are opposites on a number line (equal distance from 0 but opposite sides)?

A.  $-3$  and  $3$

C.  $-1$  and  $0$

B.  $-2$  and  $4$

D.  $2$  and  $2.5$



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## Virginia SOL Practice Test Answer Keys

**How to use this section with a Grade 6 student:**

1. check the answer first
2. mark questions to try again
3. rework the problem before reading the full explanation

**A calm correction routine turns every missed item into useful practice.**

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## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** **(6.MG.3)** For a vertical segment, subtract the  $y$ -coordinates:  $8 - 2 = 6$  units.
- 2) **Choice B is correct.** **(6.MG.2)** Using  $w = 8t$  (water = 8 ounces per second): after 5 seconds,  $w = 8 \times 5 = 40$  ounces. The graph passes through the origin, not  $(0, 8)$ .
- 3) **The correct answer is 13.** **(6.NS.1)**  $IQR = Q3 - Q1 = 23 - 10 = 13$ .
- 4) **Choice C is correct.** **(6.MG.1)** Person A:  $20\%$  of  $\$800 = 0.20 \times 800 = \$160$ . Person B:  $40\%$  of  $\$400 = 0.40 \times 400 = \$160$ . Both save  $\$160$ .
- 5) **Choice D is correct.** **(6.PS.1)** Part-to-whole compares one part (red cars) to the total (all cars sold). Since the clue says “for every 7 cars sold, 2 are red,” the 7 is the total and 2 is the red part. Thus red cars to all cars sold is  $2 : 7$ , which is the part-to-whole ratio.
- 6) **Choice C is correct.** **(6.PFA.2)** Multiply the drawing base by the scale:  $4 \text{ inches} \times 2 \text{ feet/inch} = 8 \text{ feet}$ .
- 7) **Choice B is correct.** **(6.CE.1)**  $\frac{2}{9} \times \frac{9}{4} = \frac{18}{36} = \frac{1}{2}$ .
- 8) **Choice D is correct.** **(6.PFA.2)** The data is: 21, 23, 25, 28, 30, 34, 37, 42, 46. Each value appears exactly once, so there is no mode (no repeated value).
- 9) **Choice D is correct.** **(6.PFA.2)** The order is green to coral. Count 3 green counters and 4 coral counters, so the ratio is  $3 : 4$ .
- 10) **Choice D is correct.** **(6.CE.2)** Divide area by time:  $48 \div 2 = 24$  square feet per hour.
- 11) **Choice C is correct.** **(6.PFA.2)** If the rate is 50 gal/min and the pool needs 2000 gallons, then time =  $2000 \div 50 = 40$  minutes.
- 12) **Choice B is correct.** **(6.MG.3)** The rate is  $100 : 2.50$  or  $40 : 1$ . For  $\$7.50$ :  $7.50 \times 40 = 300$  beads.
- 13) **Choice D is correct.** **(6.PS.2)** Using the equation  $y = 2.5x$ , when  $x = 12$ :  $y = 2.5(12) = 30$ . So  $k = 30$ .
- 14) **Choice C is correct.** **(6.PFA.2)**  $\frac{36}{40} = \frac{9}{10} = \frac{90}{100} = 90\%$  (simplify, then write with denominator 100).
- 15) **Choice D is correct.** **(6.MG.3)**  $60\%$  of  $15 = 0.60 \times 15 = 9 \text{ kg}$ .
- 16) **Choice B is correct.** **(6.NS.1)** For 4 people (half of 8), halve the amount:  $\frac{3}{4} \div 2 = \frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$  cup.
- 17) **Choice A is correct.** **(6.CE.2)** Use  $1 \text{ m} = 100 \text{ cm}$  and  $1 \text{ m} = 1,000 \text{ mm}$ . So  $3 \times 100 = 300 \text{ cm}$  and  $3 \times 1,000 = 3,000 \text{ mm}$ .
- 18) **Choice A is correct.** **(6.CE.1)** Remainder after rent and food:  $\$500 - \$200 - \$100 = \$200$ . Savings:  $38\%$  of  $\$200 = 0.38 \times 200 = \$76$ .
- 19) **The correct answer is A:**  $\frac{1}{2} \times 14 \times 9 = 63 \text{ m}^2$  (correct). **D:**  $\frac{1}{2} \times 6 \times 15 = 45 \text{ in}^2$  (correct).. **(6.PFA.4)** A is correct because  $\frac{1}{2} \times 14 \times 9 = 63 \text{ m}^2$ . D is correct because  $\frac{1}{2} \times 6 \times 15 = 45 \text{ in}^2$ . B doubles instead of halves, C uses the inverse formula incorrectly, and E describes the wrong effect of tripling the base.
- 20) **The correct answer is 17.5.** **(6.PFA.4)** Mean =  $\frac{7 + 14 + 21 + 28}{4} = \frac{70}{4} = 17.5$ .
- 21) **Choice A is correct.** **(6.PFA.4)**  $8,712 \div 12 = 726$ . The factory makes 726 light bulbs each day.
- 22) **Choice A is correct.** **(6.MG.3)** Treat it like whole numbers first:  $46 \times 8 = 368$ . Together the factors tuck in two decimal places, so the “real” answer is cozy at 3.68.
- 23) **Choice B is correct.** **(6.MG.2)** Factors of 18: 1, 2, 3, 6, 9, 18. Factors of 27: 1, 3, 9, 27. Factors of 45: 1, 3, 5, 9, 15, 45. Common to all three: 1, 3, 9. GCF is 9.
- 24) **Choice C is correct.** **(6.PS.1)** Factors of 21: 1, 3, 7, 21. Factors of 28: 1, 2, 4, 7, 14, 28. Common factors: 1, 7. The GCF is 7.
- 25) **Choice D is correct.** **(6.PS.2)** Both  $|9| = 9$  and  $|-9| = 9$ , so  $x$  could be either value.
- 26) **Choice C is correct.** **(6.PS.2)** In decimal form:  $-\frac{7}{10} = -0.7$ ,  $-\frac{3}{4} = -0.75$ ,  $-\frac{2}{3} \approx -0.667$ . So  $-0.75 < -0.7 < -0.667$ , placing  $-0.7$  between these two values.
- 27) **The correct answer is 6.54.** **(6.PS.1)** The mean is  $757/9 \approx 84.11$ . The sum of absolute deviations from the mean is approximately 59, so  $MAD \approx 59/9 \approx 6.54$ .



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## Hi, Math Champion!

◇ You trained hard! 10 full practice tests is real practice. Your math game is way better now than when you started. ◇

★ **Coach's truth:** kids who practice get better. You practiced. You got better. That's how it works!  
★

### Your Game Stats

- **Energy:** HIGH! You can finish a long test.
- **Smart Plays:** You know lots of strategies.
- **Calm Head:** You stay cool with hard problems.
- **Game-Day Ready:** You feel strong and prepared.

**Coach's tip:** the night before the test, get good sleep. Eat a good breakfast. Bring a sharp pencil. Trust your training!

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

**Jay Daie**

Your Math Coach

# PRACTICE MORE. ACHIEVE MORE. SUCCEED!

This **Grade 6 Math Practice Tests** book is designed to help students build strong math skills, deepen their understanding of key concepts, and gain the confidence they need to succeed on any test.

With 10 full-length printed tests and 2 online tests, students get the review, practice, and realistic test experience they need to improve accuracy, strengthen problem-solving abilities, and reach their full potential.

Perfect for classroom use, homework, test preparation, and extra practice at home.

## PERFECT FOR:

- ✓ Classroom Practice
- ✓ Homework & Review
- ✓ Independent Learning
- ✓ Test Preparation
- ✓ Skill Reinforcement
- ✓ Building Confidence



**CONFIDENCE TODAY.  
SUCCESS TOMORROW!**

## WHAT STUDENTS WILL GAIN



### Stronger Math Skills

Build a solid foundation through targeted practice and review.



### Better Problem Solving

Develop logical thinking and effective solution strategies.



### Deepen Understanding

Reinforce key math concepts aligned with standards.



### Test Confidence

Get familiar with test formats and improve accuracy.



### Achieve Success

Build confidence and perform your best on test day.

## TOPICS COVERED

- ✓ Ratios & Rates
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Fractions & Decimals
- ✓ Percents
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ And More!



## 2 ONLINE TESTS

Extra online practice to reinforce learning and build confidence.

## MORE PRACTICE. GREATER RESULTS.

Give your child the tools needed to develop strong math skills, confidence, and a positive attitude toward learning.



10 PRINTED  
PRACTICE TESTS



2 ONLINE  
PRACTICE TESTS



DETAILED ANSWER  
EXPLANATIONS