

8

Virginia SOL

GRADE 7

MATH

PRACTICE TESTS



**Standards Aligned
Problem Solving**

For Comprehensive
Assessment Programs



**8 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 SKILLS



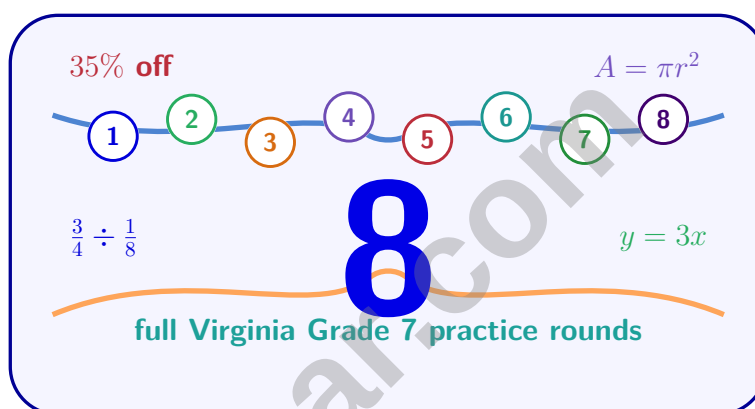
THINK SMARTER



BE TEST-READY

8 Virginia SOL Grade 7 Math Practice Tests

A complete review track through Virginia Grade 7 proportional thinking, rational operations, algebra, surface area, statistics, and probability



Eight complete 40-question Grade 7 SOL 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, Virginia Grade 7 Problem Solver!

Eight focused rounds for sharper SOL math thinking

This book gives you eight full Grade 7 SOL 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 Virginia 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

An eight-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.

Virginia 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?

Eight SOL tests, 320 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.
Tests 7–8	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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.

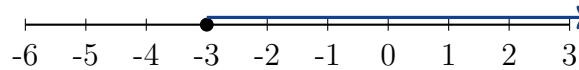


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& answers

Table of Contents

★ Practice Test 1	_____	13
★ Practice Test 2	_____	27
★ Practice Test 3	_____	43
★ Practice Test 4	_____	59
★ Practice Test 5	_____	72
★ Practice Test 6	_____	85
★ Practice Test 7	_____	98
★ Practice Test 8	_____	113
Practice Test Answer Keys	_____	127
Practice Test Answers and Explanations	_____	132

- 1) Which number line represents the inequality $x \geq -3$?



- ☐ A. Open circle at -3 pointing right ☐ C. Closed circle at -3 pointing right
☐ B. Closed circle at -3 pointing left ☐ D. Open circle at -4 pointing right
- 2) A business's profit increased from \$12 000 to \$16 800. What is the percent increase in profit?

- 3) Compare simple vs. compound: \$1,500 at 7% for 2 years. By how much does compound earn more?

Step 1: $4x = 20$

(Divide by 4)

Step 2: $x = 5$

4)

What equation did Step 1 start from?

- ☐ A. $4x + 5 = 20$ ☐ C. $4x + 8 = 28$
☐ B. $4x - 5 = 15$ ☐ D. $4x - 4 = 16$



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5) Which value of x satisfies $3x - 2 \leq 10$?

☐ A. $x = 5$

☐ C. $x = 8$

☐ B. $x = 4$

☐ D. $x = 10$

6) Rewrite $x \div \frac{4}{7} = 10$ using multiplication (reciprocal form).

☐ A. $x \times \frac{4}{7} = 10$

☐ C. $x \times 10 = \frac{4}{7}$

☐ B. $x \times \frac{7}{4} = 10$

☐ D. $10 \div x = \frac{4}{7}$

7) Which correctly identifies the repeating block in $\frac{1}{7}$?

☐ A. $0.\overline{14}$

☐ C. $0.1\overline{428}$

☐ B. $0.\overline{142857}$

☐ D. $0.\overline{7}$

8) Maria has a bank account balance of \$145.50. She withdraws \$28.75, then deposits \$52.25. What is her new balance?

☐ A. \$116.75

☐ C. \$169.00

☐ B. \$118.75

☐ D. \$226.50

9) If a number in standard form is 0.000000125, what is the value of the exponent when written in scientific notation?

☐ A. -7

☐ C. -9

☐ B. -8

☐ D. -10

10) Simplify: $(9o - 5) - (4o - 7)$

☐ A. $5o + 2$

☐ C. $13o - 12$

☐ B. $5o - 12$

☐ D. $5o - 2$



11) Which factorization shows why $6x - 9 = 3(2x - 3)$?

- ☐ A. The GCF of $6x$ and 9 is 3
- ☐ B. 6 and 9 are both divisible by 2
- ☐ C. $2x$ is a common term
- ☐ D. We subtract the smaller from the larger

12) Simplify: $12p^{11} \div 4p^6$

- ☐ A. $3p^5$
- ☐ B. $3p^{17}$
- ☐ C. $8p^5$
- ☐ D. $3p^{66}$

13) A baker buys flour in 5-pound bags at \$3 per bag. She also buys yeast for \$2. If she spends \$17 total, which equation represents the number of bags b she bought?

- ☐ A. $5b + 3 = 17$
- ☐ B. $3 + 2b = 17$
- ☐ C. $3b + 2 = 17$
- ☐ D. $5(b + 2) = 17$

14) Solve for y : $5y - 3 = 22$

- ☐ A. $y = 3$
- ☐ B. $y = 5$
- ☐ C. $y = 19$
- ☐ D. $y = 25$

15) Solve for x : $6(x + 2) = 30$

- ☐ A. $x = 1$
- ☐ B. $x = 3$
- ☐ C. $x = 5$
- ☐ D. $x = 7$



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1) A bag has 8 balls: 3 yellow and 5 orange. What is the probability of drawing a yellow ball on a single draw?

☐ A. $\frac{3}{8}$
☐ B. $\frac{5}{8}$

☐ C. $\frac{3}{5}$
☐ D. $\frac{2}{7}$

2) Which pair of numbers are closest in value?

☐ A. 2.5×10^{-2} and 2.6×10^{-2}
☐ B. 3.0×10^4 and 3.0×10^5

☐ C. 1.5×10^{-3} and 1.5×10^3
☐ D. 9.9×10^2 and 1.1×10^3

3) Simplify: $(9r + 4) - (6r + 1)$

☐ A. $3r + 3$
☐ B. $3r + 5$

☐ C. $15r + 3$
☐ D. $3r - 3$

4) Simplify: $\frac{n^9}{n^4}$

☐ A. n^5
☐ B. n^{13}

☐ C. n^{36}
☐ D. $\frac{n^4}{n^9}$

5) The image shows repeated groups of chips. How many chips in total?



4 groups of 1

What multiplication does this represent?

☐ A. $4 \times 1 = 4$
☐ B. $4 \times 2 = 8$

☐ C. $1 \times 4 = 4$
☐ D. $2 \times 4 = 8$

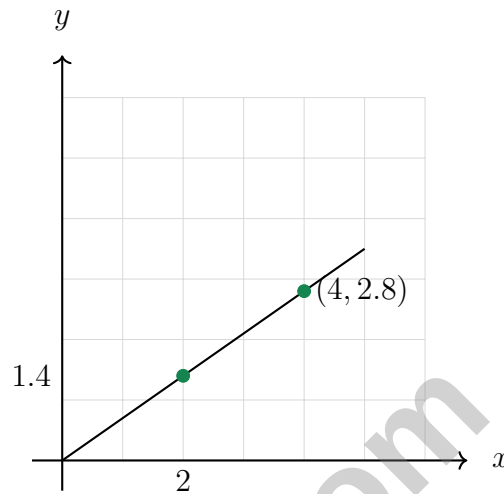


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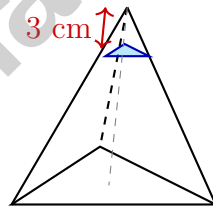
- 6) Two fair spinners are used. Spinner 1 has 4 equal sections, and Spinner 2 has 3 equal sections. A student incorrectly calculates $4 + 3 = 7$ total outcomes instead of multiplying. Why is addition wrong in this context?
- ☐ A. Addition counts outcomes within one spinner, not combinations across spinners
- ☐ B. The spinners are not fair
- ☐ C. There are only 12 outcomes, not 7
- ☐ D. The total is actually 7, and multiplication is unnecessary
- 7) A circle graph shows the budget allocation for a school: Athletics 20%, Academics 50%, Support Services 20%, Other 10%. If the total budget is \$500,000, how much is allocated to Academics?
- ☐ A. \$50,000
- ☐ B. \$100,000
- ☐ C. \$200,000
- ☐ D. \$250,000
- 8) A bag has 10 marbles: 4 red, 3 blue, and 3 green. If you draw one marble, what is the probability of drawing red OR blue?
- ☐ A. $\frac{7}{10}$
- ☐ B. $\frac{3}{10}$
- ☐ C. $\frac{4}{10}$
- ☐ D. $\frac{12}{100}$
- 9) A bicycle wheel has diameter 0.6 meters. If the bike travels 30 meters, how many complete rotations did the wheel make? Use $\pi \approx 3.14$, round to the nearest whole number.



- 1) The graph below shows a proportional relationship. Which point on the line has an x -coordinate of 1?



- ☐ A. (1, 1.2) ☐ C. (1, 1.0)
☐ B. (1, 0.8) ☐ D. (1, 0.7)



2)

A triangular pyramid has an equilateral triangular base with side 8 cm and height 12 cm. It is sliced 3 cm below the apex by a plane parallel to the base. What is the side length of the equilateral triangular cross-section?

- ☐ A. 2 cm ☐ C. 3 cm
☐ B. 2.5 cm ☐ D. 4 cm



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3) Two exam score distributions have overlapping ranges but different centers. Which pair of statistics best justifies moving a class to a harder curriculum?

- ☐ A. Comparing means only ☐ D. Comparing minimums and maximums
- ☐ B. Comparing ranges only
- ☐ C. Comparing medians and MAD

4) A bar graph shows sales by quarter. The title says “Quarterly Sales Growth,” but the y-axis starts at \$90,000 (not \$0), and Q1–Q2 sales only rise from \$100,000 to \$101,000. Why is this graph potentially misleading?

- ☐ A. The bars are too tall ☐ C. The color scheme is confusing
- ☐ B. The y-axis doesn’t start at zero, exaggerating the growth ☐ D. The labels are too small

5) Expand and simplify: $5(x - 2) + 3(x + 4)$

- ☐ A. $8x + 22$ ☐ C. $5x + 7$
- ☐ B. $8x + 12$ ☐ D. $8x + 2$

6) What is $-4 - 2$?

- ☐ A. 2 ☐ C. -6
- ☐ B. -2 ☐ D. 6

7) What percent of 60 is 48?

- ☐ A. 60% ☐ C. 80%
- ☐ B. 75% ☐ D. 90%



Virginia SOL 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 Virginia SOL practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (7.EE.4b) $x \geq -3$ means greater than or equal to -3 (includes -3), so use a closed circle at the boundary -3 and an arrow pointing right.
- 2) **The correct answer is 40%.** (7.RP.3) Percent increase = $\frac{16800-12000}{12000} \times 100\% = \frac{4800}{12000} \times 100\% = 40\%$.
- 3) **The correct answer is \$7.35.** (7.RP.3) Simple: $1500 \times 0.07 \times 2 = 210$. Compound: $1500(1.07)^2 = 1717.35$; interest = 217.35 . Difference: $217.35 - 210 = 7.35$.
- 4) **Choice C is correct.** (7.EE.3-7.EE.4) If $4x + 8 = 28$, subtracting 8 gives $4x = 20$, then dividing by 4 gives $x = 5$.
- 5) **Choice B is correct.** (7.EE.4b) Check $x = 4$: $3(4) - 2 = 10 \leq 10$ ✓. Check $x = 5$: $3(5) - 2 = 13 \not\leq 10$. Check $x = 8$: $3(8) - 2 = 22 \not\leq 10$.
- 6) **Choice B is correct.** (7.NS.1-7.NS.3) Division by a fraction equals multiplication by the reciprocal.
- 7) **Choice B is correct.** (7.NS.2d) Divide $1 \div 7 = 0.142857142857 \dots$. The block 142857 repeats.
- 8) **Choice C is correct.** (7.NS.1-7.NS.3) $145.50 - 28.75 + 52.25 = 116.75 + 52.25 = 169.00$ dollars.
- 9) **Choice C is correct.** (7.NS.1-7.NS.3) $0.000000125 = 1.25 \times 10^{-9}$. Move decimal 9 places right to reach first nonzero digit.
- 10) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute the negative: $9o - 5 - 4o + 7 = (9o - 4o) + (-5 + 7) = 5o + 2$.
- 11) **Choice A is correct.** (7.EE.1-7.EE.2) $\gcd(6, 9) = 3$, so $6x - 9 = 3(2x - 3)$ by factoring out the GCF.
- 12) **Choice A is correct.** (7.EE.1-7.EE.2) Divide coefficients: $12 \div 4 = 3$. Apply quotient rule: $p^{11} \div p^6 = p^{11-6} = p^5$. Result: $3p^5$.
- 13) **Choice C is correct.** (7.EE.4a) Each bag costs \$3 and yeast is \$2. Equation: $3b + 2 = 17$.
- 14) **Choice B is correct.** (7.EE.3-7.EE.4) Add 3: $5y = 25$. Divide by 5: $y = 5$.
- 15) **Choice B is correct.** (7.EE.4a) Distribute: $6x + 12 = 30$. Subtract 12: $6x = 18$. Divide by 6: $x = 3$.
- 16) **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.
- 17) **Choice D is correct.** (7.SP.5-7.SP.8) Total: 360° . Green: $180^\circ \Rightarrow P(\text{green}) = \frac{180}{360} = \frac{1}{2}$. Blue: $\frac{60}{360} = \frac{1}{6}$. Red: $\frac{120}{360} = \frac{1}{3}$ (non-uniform model).
- 18) **The correct answer is B,D.** (7.NS.1-7.NS.3) B: $-33 + 33 = 0$ (opposites sum to zero). D: $-100 + 100 = 0$ (opposites sum to zero). A: $20 + (-10) = 10$ (not zero). C: $14 + (-7) = 7$ (not zero).
- 19) **Choice A is correct.** (7.SP.3) Group 1's data clusters tightly around 12–13 km with a range of 4 km. Group 2 spreads from 5 to 25 km (range 20 km), making it unpredictable. Predictability correlates with small spread.
- 20) **Choice D is correct.** (7.RP.3) Origination fee = $0.01 \times 300000 = \$3,000$.
- 21) **Choice B is correct.** (7.NS.2) $-\frac{3}{5} \times (-2.5) = \frac{3}{5} \times 2.5 = 0.6 \times 2.5 = 1.5$. Negative times negative is positive.
- 22) **Choice D is correct.** (7.RP.1-7.RP.3) Flour per loaf = $4.5 \div 3 = 1.5$ cups.
- 23) **Choice D is correct.** (7.G.4-7.G.6) Decompose into a rectangle and a semicircle. Rectangle: $18 \times 10 = 180 \text{ in}^2$. Semicircle: $\frac{1}{2} \times 3.14 \times 5^2 = \frac{1}{2} \times 3.14 \times 25 = 39.25 \text{ in}^2$. Add: $180 + 39.25 = 219.25 \text{ in}^2$.
- 24) **Choice A is correct.** (7.G.4-7.G.6) The student calculated $SA = 2(lw + lh + wh) = 2(80 + 30 + 24) = 268 \text{ cm}^2$ (approximately 280), confusing SA with volume. Volume is $V = 10 \times 8 \times 3 = 240 \text{ cm}^3$.
- 25) **Choice A is correct.** (7.G.1-7.G.5) When two angles and the side between them are given, the triangle is uniquely determined. The third angle is $180^\circ - 71^\circ - 72^\circ = 37^\circ$.
- 26) **Choice C is correct.** (7.G.4-7.G.6) The longest chord is the diameter, which equals $2r = 2 \times 10 = 20 \text{ cm}$.
- 27) **Choice D is correct.** (7.G.1-7.G.5) The Triangle Inequality requires the sum of any two sides to exceed the third. With sides 5 and 9: we need $5 + 9 > c$, so $c < 14 \text{ m}$. Also $5 + c > 9$, so $c > 4 \text{ m}$. Thus $4 < c < 14$. The value 15 exceeds this range.
- 28) **Choice D is correct.** (7.SP.1-7.SP.4) The dot plot shows 6 defects out of 20 items. Proportion: $\frac{6}{20} = \frac{x}{200} \Rightarrow \frac{3}{10} = \frac{x}{200} \Rightarrow x = 60$.



Hi, Brave Learner!

◇ No one gets stronger by only doing easy problems. The questions that slowed you down were part of the training. This wide-ranging book gave you eight serious Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Mistakes are not proof that you cannot do math. They are directions. They show what to review, what to ask about, and what to practice next. ★

How to Use Mistakes

- **Name It:** Was it reading, setup, arithmetic, or checking?
- **Fix It:** Correct the work while the question is fresh.
- **Repeat It:** Try one similar problem soon.
- **Remember It:** Write the lesson in your own words.

Grade 7 test-day tip: Treat every corrected error as a point you are preparing to earn next time.

If you want to share something or ask a question, please email me at jay@testinar.com.

Jay Daie

Your Brave-Learning Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **8** full-length Math practice tests and **2** online tests to help Grade 7 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

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



THIS BOOK INCLUDES:

8 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answer Explanations



MORE PRACTICE. GREATER RESULTS.

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

WHAT YOU'LL GAIN



Stronger Math Skills

Build a solid foundation through targeted practice and review.



Better Problem Solving

Develop logical thinking and effective solution strategies.



Deeper Understanding

Reinforce key concepts with clear explanations and meaningful practice.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Achieve Success

Build confidence and perform your best on test day.

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



2 ONLINE TESTS

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



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

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