7 Virginia SOL

Grade 7 Math Practice Tests

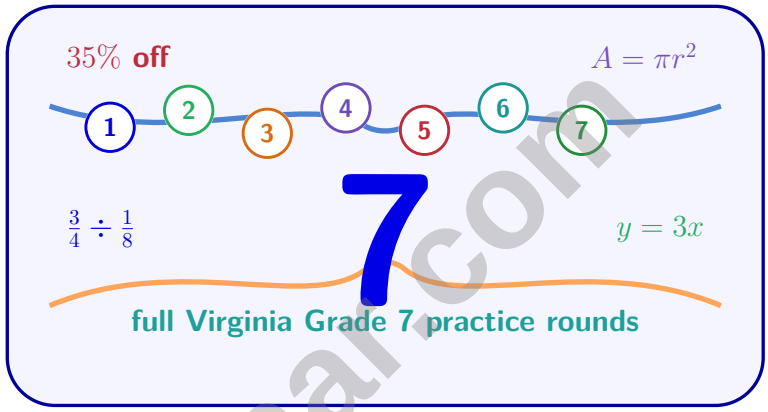
ONLINE

7 PRINTED TESTS + 2 ONLINE TESTS

Standards Aligned Problem Solving For Comprehensive Assessment Programs

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.

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Welcome, Virginia Grade 7 Problem Solver!

Eight focused rounds for sharper SOL math thinking

This book gives you seven 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.

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, 280 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.

Table of Contents

1) Use the distributive property to simplify $3(x + 5) - 2x$.

☐ A. $3x + 15 - 2x = x + 15$
☐ B. $x + 5$
☐ C. $3x + 5 - 2x$
☐ D. $3x + 15$

2) A customer's bill at a cafe is \$36. She wants to tip 20% and then split the total equally with a friend. How much does each person pay?

☐ A. \$18.00
☐ B. \$43.20
☐ C. \$25.20
☐ D. \$21.60

3) Temperature drops 2 degrees per hour for 6 hours. What is the total change?

☐ A. 4 degrees
☐ B. −4 degrees
☐ C. −12 degrees
☐ D. 12 degrees

4) A bank offers two savings products: Account 1 earns 7% compound interest on a \$1,200 deposit; Account 2 earns 8% compound interest on a \$1,100 deposit. After 1 year, which account has the greater balance and by how much?

☐ A. Account 1 by \$96
☐ B. Account 2 by \$96
☐ C. Account 1 by \$50
☐ D. Account 2 by \$20

5) Two triangles each have angles measuring 50°, 60°, and 70°. Are the triangles congruent?

☐ A. Yes, always congruent
☐ B. No, never congruent
☐ C. Only if one side length is the same
☐ D. Cannot be determined without side lengths

6) On a number line, which point represents a number whose absolute value is 10?

☐ A. Only 10
☐ B. Only −10
☐ C. Both 10 and −10
☐ D. Only 0

7) Identify which term is not a like term with $3x$.

☐ A. $7x$
☐ B. $-2x$
☐ C. x
☐ D. $3x^2$

8) A square pyramid has a square base with side 5 cm and slant height 6.5 cm. Find the total surface area.

☐ A. 25 cm^2
☐ B. 50 cm^2
☐ C. 90 cm^2
☐ D. 115 cm^2

9) Evaluate $2(a-3)+5$ when $a=5$.

☐ A. 11
☐ B. 8
☐ C. 6
☐ D. 9

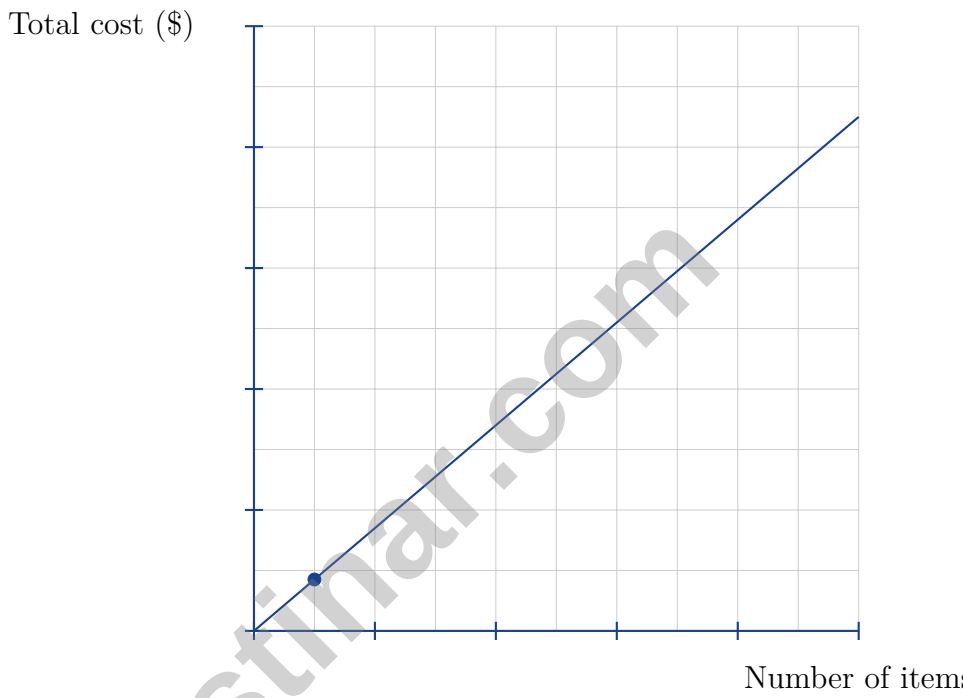
10) Factor: $25cd-35c$

☐ A. $5c(5d-7)$
☐ B. $5(5cd-7c)$
☐ C. $c(25d-35)$
☐ D. $35(25cd-c)$

11) A grocery store offers a $5 discount coupon to customers who complete a short survey in the store. Which sampling bias is introduced by offering a reward?

☐ A. Convenience bias
☐ B. Selection bias
☐ C. Measurement bias
☐ D. Voluntary response bias

12)



From this proportional relationship graph, identify the unit-rate point and find the cost per item.

1) Marcus earns \$12 per hour. After working 8 hours, he spent \$15 on lunch. How much money does he have left?

☐ A. \$81
☐ B. \$96
☐ C. \$111
☐ D. \$127

2) Between which two consecutive integers does $\sqrt{99}$ lie?

☐ A. between 7 and 8
☐ B. between 8 and 9
☐ C. between 9 and 10
☐ D. between 10 and 11

3) Two box plots compare the number of online orders per day for two e-commerce sites. Site X: Q1 = 50, Median = 75, Q3 = 100. Site Y: Q1 = 40, Median = 75, Q3 = 110. Which site has more consistent order volume?

☐ A. Site X (lower IQR: 50 vs. 70)
☐ B. Site Y (higher Q3 means more orders)
☐ C. Both sites are identical
☐ D. Site Y (lower Q1 means better baseline)

4) A track is shaped like a rectangle with two semicircles on the shorter ends. The rectangle is 10 m long and 6 m wide. The semicircles have a diameter of 6 m. (Use $\pi \approx 3.14$.) What is the total area?

☐ A. 60 m^2
☐ B. 74.13 m^2
☐ C. 88.26 m^2
☐ D. 94.26 m^2

5) A cube has side length 5 inches. What is its volume?

☐ A. 125 in^3
☐ B. 75 in^3
☐ C. 25 in^3
☐ D. 15 in^3

6) If two circles have the same radius, what can you say about their diameters?

☐ A. The diameters are different
☐ B. The diameters are the same
☐ C. One diameter is twice the other
☐ D. Cannot be determined

7) Which expression is simplified?

☐ A. $3x + 2x - y$
☐ B. $5x + 2x - y + y$
☐ C. $5x - y$
☐ D. $2x + 3x + 4y$

8) A rectangular prism has length 7 in, width 5 in, and height 4 in. If each dimension is increased by 1 inch, by how much does the surface area increase?

☐ A. 24 in^2
☐ B. 48 in^2
☐ C. 70 in^2
☐ D. 96 in^2

9) Evaluate $3a^2 - 2a + 4$ when $a = 1$.

☐ A. 9
☐ B. -1
☐ C. 3
☐ D. 5

10) Which expression shows $4x + 8y$ factored completely?

☐ A. $4(x + 2y)$
☐ B. $4x(1 + 2y)$
☐ C. $2(2x + 4y)$
☐ D. $x(4 + 8y)$

11) A large university has 12,000 students. A researcher wants to estimate the proportion of students who exercise regularly. She decides to survey a random sample. Which sample size is most likely to give a reliable estimate?

☐ A. 20 students
☐ B. 50 students
☐ C. 300 students
☐ D. 2000 students

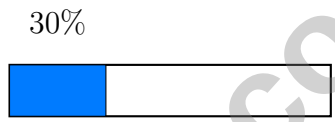
1) Two cards are drawn from a standard 52-card deck WITH replacement. What is the probability of drawing a heart on the first draw AND a spade on the second draw?

☐ A. $\frac{1}{16}$
☐ C. $\frac{1}{4}$
☐ B. $\frac{1}{13}$
☐ D. $\frac{1}{8}$

2) A ratio table shows the relationship between pounds of coffee and cost. The table indicates that 4 pounds cost $28. If the relationship is proportional, how much do 10 pounds cost?

☐ A. $60
☐ C. $74
☐ B. $84
☐ D. $70

3)



Total: 60 students

Based on the bar model, how many students are represented by the shaded part?

☐ A. 60 students
☐ C. 42 students
☐ B. 30 students
☐ D. 18 students

4) Olivia compares two budgets. Budget A: 40% expenses, 30% savings, 30% investments. Budget B: 45% expenses, 35% savings, 20% investments. How much more does Budget A allocate to investments than Budget B?

☐ A. 5%
☐ C. 15%
☐ B. 20%
☐ D. 10%

5)

Gross $2000	Federal $240	Social $153	Net $?

A pay stub shows gross income of $2 000, federal tax withholding of $240, and Social Security withholding of $153. What is the net pay?

☐ A. $1 607
☐ B. $1 760
☐ C. $1 847
☐ D. $1 900

6) A news outlet wants to estimate the average hourly wage of workers in a city. It surveys 200 workers at an airport during afternoon shifts. Why is this sample problematic?

☐ A. Airport workers may have different wage patterns than all workers in the city
☐ B. The sample size is too small
☐ C. Afternoon shift workers are not employed
☐ D. Only airport workers can be surveyed

7) To estimate the probability of a biased coin landing on heads, which number of trials would give the most reliable estimate?

☐ A. 10 trials
☐ B. 50 trials
☐ C. 500 trials
☐ D. 1000 trials

8) A map shows a park with a scale of 2 cm : 1 km. If the park on the map has an area of 8 cm^2, what is the actual area of the park in square kilometers?

☐ A. 2 km^2
☐ B. 4 km^2
☐ C. 8 km^2
☐ D. 16 km^2

Standards of Learning 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 Standards of Learning practice test.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice A is correct.** 7.EE.1-7.EE.2 Distribute: $3(x+5)-2x = 3x+15-2x$. Combine like terms: $3x-2x+15 = x+15$.
2) **Choice D is correct.** 7.RP.3 Tip: $0.20 \times 36 = \$7.20$. Total bill: $36 + 7.20 = \$43.20$. Each person pays $43.20 \div 2 = \$21.60$.
3) **Choice C is correct.** 7.NS.2 Drop of 2 degrees per hour for 6 hours: $(-2) \times 6 = -12$ degrees.
4) **Choice A is correct.** 7.RP.3 Account 1: $1200(1.07) = 1284$. Account 2: $1100(1.08) = 1188$. Difference: $1284-1188 = 96$.
5) **Choice D is correct.** 7.G.1-7.G.5 AAA (Angle–Angle–Angle) guarantees similarity, not congruence. The triangles could be different sizes but the same shape. At least one side length is needed to prove congruence.
6) **Choice C is correct.** 7.NS.1-7.NS.3 Two points on a number line have absolute value 10: the point 10 (ten units right of zero) and -10 (ten units left of zero).
7) **Choice D is correct.** 7.EE.1 $3x^2$ has exponent 2, while $3x$ has exponent 1. They are not like terms.
8) **Choice C is correct.** 7.G.4-7.G.6 Base area: $5^2 = 25$ cm^2. Lateral area: $4 \times \frac{1}{2} \times 5 \times 6.5 = 65$ cm^2. Total surface area is $25 + 65 = 90$ cm^2.
9) **Choice D is correct.** 7.EE.1-7.EE.2 Substitute: $2(5-3)+5 = 2(2)+5 = 4+5 = 9$.
10) **Choice A is correct.** 7.EE.1-7.EE.2 GCF of $25cd$ and $35c$ is $5c$. Factor: $25cd - 35c = 5c(5d-7)$.
11) **Choice D is correct.** 7.SP.1-7.SP.4 Offering a reward attracts people who are motivated by free money rather than those who may have genuine opinions. This creates a biased group of volunteers.
12) **The correct answer is** 0.85 **.** 7.RP.1-7.RP.3 The marked point is $(1, 0.85)$, which is the unit-rate point. This means the constant of proportionality is $k = 0.85$, so the cost is \$0.85 per item.
13) **Choice B is correct.** 7.SP.5-7.SP.8 Theoretical: $\frac{200}{4} = 50$ each. Frequencies: 1 is 48 (dev 2), 2 is 52 (dev 2), 3 is 45 (dev 5), 4 is 55 (dev 5). Sections 2 and 4 are closest: $\frac{52}{200} = 0.26$ and $\frac{55}{200} = 0.275$.
14) **Choice C is correct.** 7.RP.3 Available $= \$3{,}600 - \$1{,}200 - \$400 - \$300 - \$200 = \$1{,}500$.
15) **Choice A is correct.** 7.EE.4b Multiply by 3: $2x - 1 \leq 15$. Add 1: $2x \leq 16$. Divide by 2: $x \leq 8$.
16) **Choice B is correct.** 7.G.1-7.G.5 Actual dimensions: 600 ft $\times$400 ft. Area: $600 \times 400 = 240000$ sq ft.
17) **Choice B is correct.** 7.G.1-7.G.5 Original scale 1:12 means 1 in = 12 ft. New scale 1:6 means 1 in = 6 ft. Real-world distance per inch halved (12 to 6), so drawing expands. Scale factor ratio: $6 \div 12 = 0.5$, so drawing expands by $1 \div 0.5 = 2$. New dimensions: $3.5 \times 2 = 7$ in and $4.5 \times 2 = 9$ in.
18) **Choice B is correct.** 7.G.1-7.G.5 A linear pair is supplementary: $180 - 91 = 89°$.
19) **The correct answer is A,B.** 7.RP.1-7.RP.3 A and B. Each point satisfies $y/x = 3$, so the table is proportional with constant ratio 3 (A) and is modeled by $y = 3x$ (B). C is false: the constant of proportionality is 3, not $\frac{1}{3}$. D is false: $y = 3x - 1$ would give $y = 2$ at $x = 1$, not 3.
20) **Choice A is correct.** 7.G.1-7.G.5 Using the rule $(x, y) \to (-y, -x)$ with $(5, -2)$: $(-(-2), -(5)) = (2, -5)$.
21) **Choice C is correct.** 7.G.1-7.G.5 All linear dimensions scale by the scale factor. Height $= 2 \times 1.5 = 3$ cm.
22) **Choice B is correct.** 7.G.4-7.G.6 $C = \pi d = 3.14 \times 8 = 25.12$ units.
23) **The correct answer is** 1350 **.** 7.RP.1-7.RP.3 New dimensions: $20 \times 1.5 = 30$ inches and $30 \times 1.5 = 45$ inches. New area $= 30 \times 45 = 1350$ sq in.
24) **Choice B is correct.** 7.G.4-7.G.6 The area of a circle uses the formula $A = \pi r^2$. The formula $2\pi r$ is for circumference.
25) **Choice B is correct.** 7.G.4-7.G.6 A: $V = \pi r^2 h = 3.14 \times (1)^2 \times 12 = 3.14 \times 1 \times 12 = 37.68$ units^3. B: $V = 3.14 \times (3)^2 \times 1.5 = 3.14 \times 9 \times 1.5 = 42.39$ units^3. Cylinder B is greater.
26) **Choice B is correct.** 7.SP.5-7.SP.8 By the counting principle: $2 \times 3 \times 2 = 12$ different lunch combinations.
27) **Choice A is correct.** 7.NS.1-7.NS.3 Difference: $\frac{5}{6} - \frac{2}{3} = \frac{5}{6} - \frac{4}{6} = \frac{1}{6}$.
28) **Choice A is correct.** 7.NS.1-7.NS.3 $\frac{4}{5} \div 2 = \frac{4}{5} \times \frac{1}{2} = \frac{4}{10} = \frac{2}{5}$.
29) **The correct answer is** 15% **.** 7.RP.3 The discount amount is $60 - 51 = 9$ dollars. Percent discount: $\frac{9}{60} = 0.15 = 15\%$.

Author's Note

One Last Encouragement

Hi, Determined Student!

◇ You did meaningful Grade 7 practice. That matters because confidence is built through action, not waiting until everything feels easy. This broad and demanding book gave you seven strong Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

⋆ **Remember this:** Carry this with you: you can learn hard things by breaking them into steps, asking good questions, and reviewing with honesty. ⋆

Take This With You

- **You Can Start:** Even when the problem looks big.
- **You Can Adjust:** When the first method is not enough.
- **You Can Learn:** From every corrected mistake.
- **You Can Improve:** One practice session at a time.

Grade 7 test-day tip: Walk into test day ready to think, not ready to be perfect. Thinking clearly is the goal.

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

Jay Daie

Your Grade 7 Math Friend

Practice Today. Succeed Tomorrow!

This book includes 7 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:

- **7** 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.

TOPICS COVERED

- Ratios & Proportions
- 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!

Don't lose it—your extra practice and success start here!

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PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY