

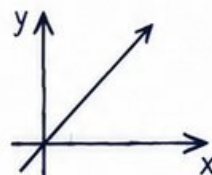
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Virginia
SOLGRADE
7
MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

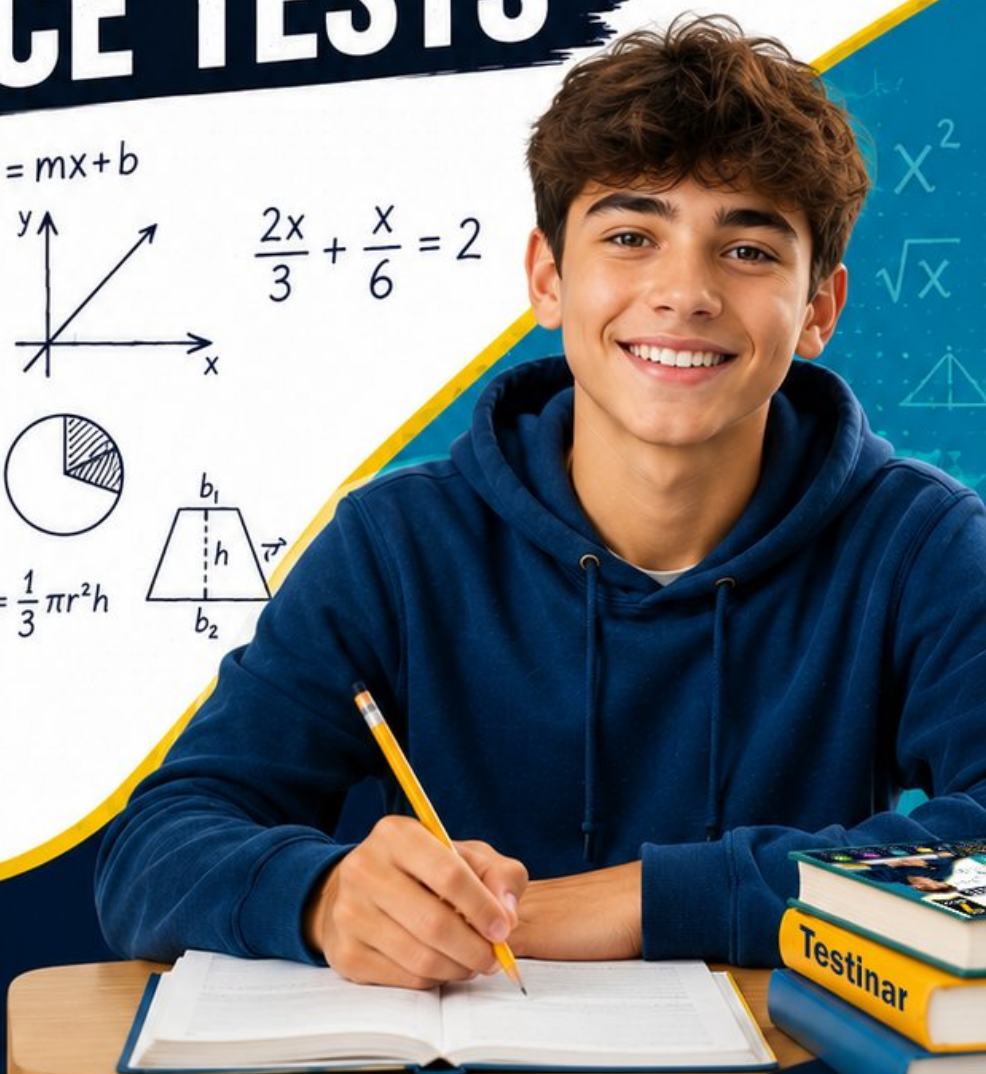
$$y = mx + b$$



$$\frac{2x}{3} + \frac{x}{6} = 2$$



$$V = \frac{1}{3} \pi r^2 h$$

4 PRINTED
TESTS2 ONLINE
TESTSUSE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTSFOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.Build
ConfidenceStrengthen
Math SkillsDetailed Answers
& ExplanationsImprove Test
Performance

4 Virginia SOL Grade 7 Math Practice Tests

Virginia Grade 7 Practice with Review, Keys, and Confidence



Four 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!

Four focused rounds for sharper SOL math thinking

This book gives you four 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

A four-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?

Four SOL tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 3–4	Expressions, equations, inequalities, scale drawings, geometry, data, probability, 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.



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& answers

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1) If money doubles in 10 years with annual compound interest, which rate is most consistent with this growth?

☐ A. 5%

☐ C. 10%

☐ B. 12%

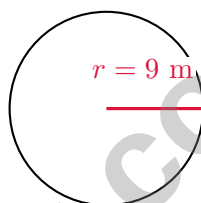
☐ D. 7%

2) A bike tire has diameter 24 inches. If the tire rotates 20 times, how far does the bike travel? Use $\pi \approx \frac{22}{7}$.

☐ A. About 1507 inches

☐ C. About 753 inches

☐ B. About 3014 inches

☐ D. About 6029 inches


3)

What is the area of this circle? Use $\pi \approx 3.14$.

☐ A. 56.52 m²
☐ C. 254.34 m²
☐ B. 113.04 m²
☐ D. 508.68 m²

4) A plant scientist measures the heights (in cm) of two plant varieties after 6 weeks:

Variety	Mean	Median	IQR
Fast-Grow	32	31	8
Steady-Grow	31	32	3

Which statement best describes the distributions?

☐ A. Fast-Grow is taller and more consistent

☐ C. Both varieties are identical

☐ B. Steady-Grow has low outliers; Fast-Grow has consistent growth

☐ D. Steady-Grow is more consistent; Fast-Grow skewed high


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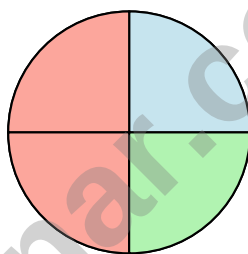
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- 5) A box plot shows the distribution of test scores for two classes: Class A: median 78, IQR 12 Class B: median 82, IQR 8 Which statement is true?

- ☐ A. Class A has a higher median ☐ C. Class A performed better overall
☐ B. Class B has less variability ☐ D. Class B has more outliers

- 6) A temperature changes from -8 degrees to 8 degrees. What is the total change in temperature?



7)

A spinner has four equal sections: one blue, two red, and one green. What is the probability of spinning red?

- ☐ A. $\frac{1}{4}$ ☐ C. $\frac{2}{3}$
☐ B. $\frac{1}{2}$ ☐ D. $\frac{3}{4}$

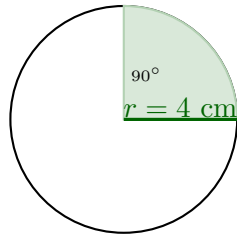
- 8) What is $-\frac{3}{4} \times (-\frac{8}{9})$?



- 9) Two box plots show salaries (in thousands of dollars) for two companies. Company P: Min 30, Q1 40, Median 50, Q3 65, Max 90; Company Q: Min 35, Q1 42, Median 48, Q3 60, Max 85. Which company has higher salaries overall?
- ☐ A. Company P (higher median and Q3) ☐ C. Both companies pay equally
☐ B. Company Q (higher minimum) ☐ D. Company Q (higher maximum)
- 10) A box contains 9 identical items: 3 red, 2 blue, and 4 yellow. Drawing with replacement, which is MORE likely: (R then B) or (B then R)?
- ☐ A. (R then B) is more likely ☐ D. It depends on the order of the items in the box
☐ B. (B then R) is more likely
☐ C. Both have equal probability
- 11) A game uses a spinner divided into 8 equal sections. The spinner was spun 800 times. One section appeared 85 times. Comparing the experimental and theoretical probabilities, which statement is true?
- ☐ A. Both equal $\frac{1}{8}$. ☐ C. Experimental is higher than theoretical.
☐ B. Experimental is $\frac{85}{800}$; theoretical is $\frac{1}{8}$. ☐ D. Theoretical is higher than experimental.
- 12) If raw data {23, 25, 28, 32, 35, 38, 41, 44, 47} is displayed in a stem-and-leaf plot with stems 2, 3, 4, what is the interquartile range (IQR) if Q_1 is at the median of the lower half and Q_3 is at the median of the upper half?
- ☐ A. 11 ☐ C. 16
☐ B. 14 ☐ D. 24



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1)

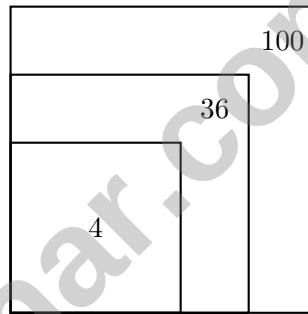
A quarter-circle sector has a central angle of 90° and radius 4 cm. What is its area?
(Use $\pi \approx 3.14$.)

☐ A. 6.28 cm^2

☐ C. 25.12 cm^2

☐ B. 12.56 cm^2

☐ D. 50.24 cm^2



2)

Based on the areas shown, what are the side lengths?

☐ A. 2, 6, 10

☐ C. 2, 8, 10

☐ B. 2, 6, 12

☐ D. 4, 6, 10

Equivalence Table

Form 1	Form 2	Value
$x - 0.25x$	$0.75x$	\$60

3)

Using the equivalence table, if both forms equal \$60, what is x ?

☐ A. $x = 45$

☐ C. $x = 80$

☐ B. $x = 75$

☐ D. $x = 100$



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4) What is $-\frac{1}{2} \times 10$?

☐ A. -20

☐ C. 5

☐ B. -5

☐ D. 20

5) A punch recipe calls for 3 cups orange juice, 2 cups pineapple juice, and 1 cup ginger ale. To make a batch 4 times as large, how many cups of pineapple juice are needed?

☐ A. 2 cups

☐ C. 6 cups

☐ B. 4 cups

☐ D. 8 cups

6) A stock investment grows from \$5,000 to \$5,500 in one year. What is the percentage growth?



1) A restaurant bill is \$50. If you tip 18%, what is the tip amount?

☐ A. \$5

☐ C. \$9

☐ B. \$6

☐ D. \$12

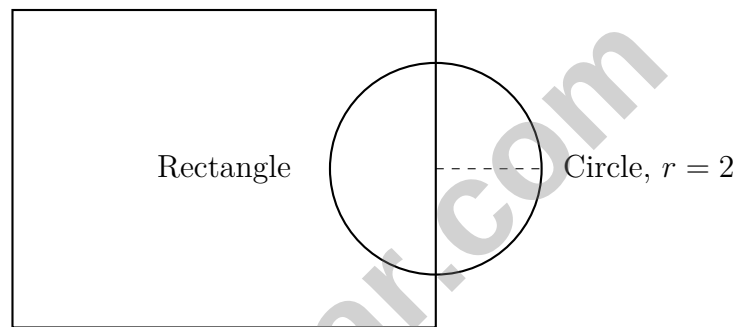
2) A stem-and-leaf plot is created from test scores. Stem 8 has leaves 1, 2, 4, 5, 6, 7, 9. Stem 9 has leaves 0, 1, 3. Which score appears most frequently in the dataset?

☐ A. 81

☐ C. 90

☐ B. 89

☐ D. No mode (each score appears once)



3)

A composite figure has a rectangle ($8\text{ m} \times 6\text{ m}$) with a circle (radius 2 m) attached to one side. Using $\pi \approx 3.14$, what is the total area?

☐ A. 12.56 m^2

☐ C. 60.56 m^2

☐ B. 48 m^2

☐ D. 98.24 m^2

4) A rectangular prism has length 8 cm , width 6 cm , and height 10 cm . Convert its volume to liters if $1\text{ liter} = 1,000\text{ cm}^3$.

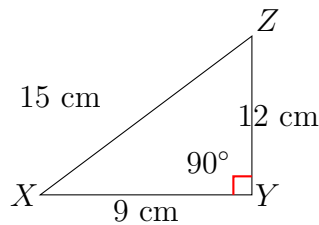
☐ A. 0.48 L

☐ C. 48 L

☐ B. 480 L

☐ D. 4.8 L





5)

A triangle has sides 9 cm, 12 cm, and 15 cm. Is this a right triangle?

☐ A. Yes☐ C. Cannot be determined☐ B. No☐ D. Only if one angle is 90°

6) A sector of a circle is best described as:

☐ A. A line through the circle☐ C. A chord and an arc☐ B. A pie-shaped region bounded by two radii and an arc☐ D. Half of a circle

7) A rectangular prism has length 12 in, width 6 in, and height 5 in. Find the surface area.

☐ A. 360 in²☐ C. 258 in²☐ B. 324 in²☐ D. 180 in²8) What is the correct factorization of $-6m + 18$?☐ A. $6(-m + 3)$ ☐ C. $-6(m + 3)$ ☐ B. $-6(m - 3)$ ☐ D. $6(m - 3)$ 

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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 D is correct.** (7.RP.3) For doubling: $(1+r)^{10} = 2 \Rightarrow 1+r = 2^{1/10} \approx 1.0718 \Rightarrow r \approx 7.18\%$. Check: $(1.07)^{10} \approx 1.967 \approx 2.0$.
- 2) **Choice A is correct.** (7.G.4-7.G.6) $C = \pi d = \frac{22}{7} \times 24 = \frac{528}{7} \approx 75.43$ in. Distance = $20 \times 75.43 \approx 1507$ in.
- 3) **Choice C is correct.** (7.G.4-7.G.6) $A = 3.14 \times 9^2 = 3.14 \times 81 = 254.34$ m².
- 4) **Choice D is correct.** (7.SP.1-7.SP.4) Steady-Grow: mean (31) < median (32), indicating low outliers; IQR = 3 shows tight clustering. Fast-Grow: mean (32) > median (31), meaning some plants grew much taller than the typical height, pulling the mean up (right skew); IQR = 8 shows much wider spread. Steady-Grow is more consistent overall.
- 5) **Choice B is correct.** (7.SP.1-7.SP.4) IQR (Interquartile Range) measures spread. Class B's IQR of 8 is smaller than Class A's IQR of 12, indicating less variability in the middle 50% of scores.
- 6) **The correct answer is 16.** (7.NS.1-7.NS.3) The change is final minus initial: $8 - (-8) = 8 + 8 = 16$ degrees.
- 7) **Choice B is correct.** (7.SP.5-7.SP.8) Red sections: 2 out of 4. $P(\text{red}) = \frac{2}{4} = \frac{1}{2}$.
- 8) **The correct answer is $\frac{2}{3}$.** (7.NS.2) $-\frac{3}{4} \times (-\frac{8}{9}) = \frac{3 \times 8}{4 \times 9} = \frac{24}{36} = \frac{2}{3}$. Negative times negative is positive.
- 9) **Choice A is correct.** (7.SP.3) Company P's median (50) and Q3 (65) are both higher than Company Q's (48 and 60). These measures indicate Company P's typical and upper-quartile salaries are higher.
- 10) **Choice C is correct.** (7.SP.5-7.SP.8) $P(\text{R then B}) = \frac{3}{9} \cdot \frac{2}{9} = \frac{6}{81}$. $P(\text{B then R}) = \frac{2}{9} \cdot \frac{3}{9} = \frac{6}{81}$. Multiplication is commutative.
- 11) **Choice B is correct.** (7.SP.6) Experimental: $\frac{85}{800} \approx 0.106$. Theoretical: $\frac{1}{8} = 0.125$. The experimental probability came from the observed data.
- 12) **Choice C is correct.** (7.SP.1-7.SP.4) There are 9 values, so the median is the 5th value (35). The lower half (excluding the median) is {23, 25, 28, 32}: $Q_1 = (25 + 28)/2 = 26.5$. The upper half is {38, 41, 44, 47}: $Q_3 = (41 + 44)/2 = 42.5$. The IQR is $Q_3 - Q_1 = 42.5 - 26.5 = 16$.
- 13) **Choice B is correct.** (7.G.4-7.G.6) Each trapezoid: $\frac{1}{2}(6+4) \times 3 = 15$ m². Two trapezoids: $15 + 15 = 30$ m².
- 14) **Choice C is correct.** (7.G.4-7.G.6) Base area = $\frac{1}{2} \times 8 \times 9 = 36$ m². Volume = $36 \times 5 = 180$ m³.
- 15) **Choice A is correct.** (7.G.1-7.G.5) $5^2 + 12^2 = 25 + 144 = 169 = 13^2$ ✓. This is the 5-12-13 Pythagorean triple.
- 16) **Choice B is correct.** (7.G.4-7.G.6) A chord with length equal to the diameter must be the diameter itself, as the diameter is the longest possible chord in a circle.
- 17) **The correct answer is 100.** (7.NS.1-7.NS.3) Perimeter = $4s = 40$, so $s = 10$ cm. Area = $s^2 = 10^2 = 100$ cm².
- 18) **The correct answer is A,D.** (7.RP.1-7.RP.3) A and D are unit rates because each gives a price per single unit of weight. Option B is a distance, and option C is a total count.
- 19) **Choice A is correct.** (7.G.1-7.G.5) All three inequalities must hold: $13 > 5$ ✓, $12 > 6$ ✓, $11 > 7$ ✓. The Triangle Inequality is satisfied, so this triangle can exist.
- 20) **Choice C is correct.** (7.SP.5-7.SP.8) The point is at the third tick mark from 0 to 1, which represents 0.3.
- 21) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{90}{300} = \frac{x}{15000}$. Reduce: $\frac{3}{10} = \frac{x}{15000} \Rightarrow x = 4500$.
- 22) **Choice A is correct.** (7.NS.1-7.NS.3) The change is final minus initial: $-8 - 5 = -13^\circ F$. The negative sign indicates the temperature decreased by 13 degrees.
- 23) **Choice D is correct.** (7.RP.1-7.RP.3) Actual dimensions now: (4×2) m by (3×2) m = 8 m by 6 m. To show as 4 cm by 3 cm: $8 \div 4 = 2$ m per cm, or 1 cm : 4 m (doubling the real dimensions doubles the scale).
- 24) **Choice D is correct.** (7.RP.3) The tax is 8% of \$120: $0.08 \times 120 = 9.60$ dollars.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) Runner A: $\frac{1/3}{1/20} = \frac{1}{3} \times 20 = \frac{20}{3}$ mph. Runner B: $\frac{2/5}{1/12} = \frac{2}{5} \times 12 = \frac{24}{5} = 4.8$ mph. Runner A is faster.
- 26) **Choice D is correct.** (7.RP.1-7.RP.3) At constant rate with no warm-up: pages = $40 \times$ minutes. Proportional with $k = 40$.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) $y = \frac{7}{2}(6) = \frac{7 \times 6}{2} = \frac{42}{2} = 21$.
- 28) **Choice D is correct.** (7.RP.1-7.RP.3) Calculate the unit rate from each data point: $\$450 \div 3 = \150 per month and $\$1200 \div 8 = \150 per month. Since both unit rates are \$150 per month, the relationship is proportional.



Hi, Math Hero!

◇ This carefully paced book gave you four steady Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 7 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

★ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ★

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 7 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **4** 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.



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2 Online Practice Tests

 Detailed Answers & Explanations



MORE PRACTICE. GREATER RESULTS.

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

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Practice regularly to feel prepared and test-ready.



Strengthen Math Skills

Develop key math concepts and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Boost Performance

Apply your knowledge and achieve your best score!

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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

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2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

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