

8

Connecticut

Smarter Balanced

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



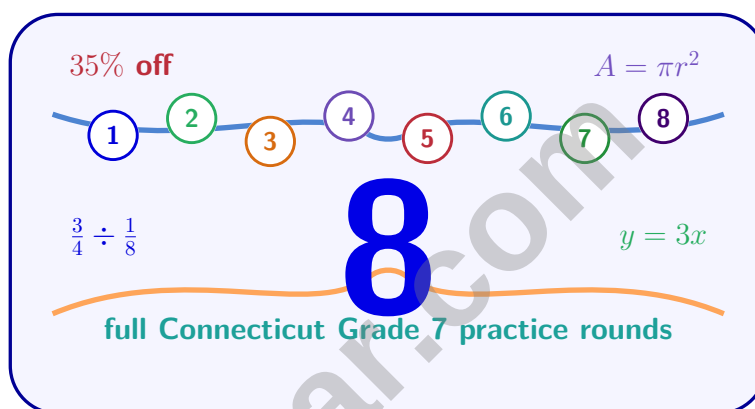
THINK SMARTER



BE TEST-READY

8 Connecticut Smarter Balanced Grade 7 Math Practice Tests

Purposeful work on Connecticut Grade 7 percents, rational operations, equations, transformations, statistics, and probability



Eight 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, Connecticut Grade 7 Problem Solver!

Eight focused rounds for sharper Smarter Balanced math thinking

This book gives you eight 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 Connecticut 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.

Connecticut 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 Smarter Balanced 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

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1) Simplify: $t^4 \cdot t^6$

☐ A. t^2

☐ B. t^{10}

☐ C. t^{24}

☐ D. $2t^{10}$

2) Which factorization is incomplete (not fully factored)?

☐ A. $32x + 48 = 16(2x + 3)$

☐ B. $21y - 14 = 7(3y - 2)$

☐ C. $18a + 12b = 3(6a + 4b)$

☐ D. $6m + 9n = 3(2m + 3n)$

3) Solve: $-3x + 10 = 1$

☐ A. $x = -3$

☐ B. $x = 1$

☐ C. $x = 3$

☐ D. $x = 9$

4) Solve for x : $5(x - 2) = 35$

☐ A. $x = 5$

☐ B. $x = 7$

☐ C. $x = 9$

☐ D. $x = 12$

5) A taxi charges \$3 per mile plus a \$2 fee. If a trip costs \$17, how many miles was the trip? Check your answer is reasonable.

☐ A. 3 miles

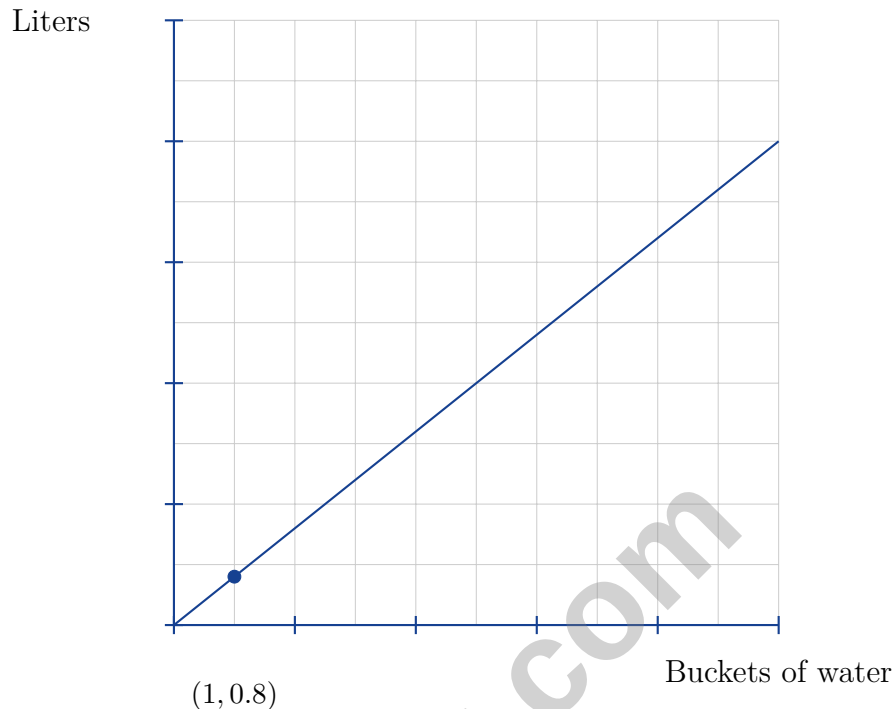
☐ B. 5 miles

☐ C. 6 miles

☐ D. 8 miles



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6)

A graph of a proportional relationship is shown with the unit-rate point labeled. Write the equation in the form $y = kx$.

☐ A. $y = 10x$

☐ C. $y = 8x$

☐ B. $y = 1.25x$

☐ D. $y = 0.8x$

7) Maria has a loss of \$45 that she shares equally among 5 friends. How much does each friend owe?

☐ A. Each friend owes \$9

☐ C. Each friend owes -\$9

☐ B. Each friend receives \$9

☐ D. Cannot be divided



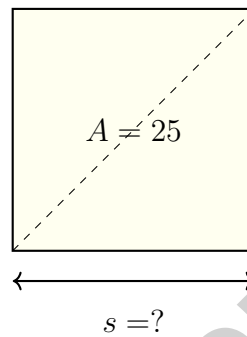
8) A package weighs 4.2 kg. If $\frac{3}{7}$ of the package is paper, how much does the paper weigh?

☐ A. 0.6 kg

☐ C. 1.8 kg

☐ B. 1.2 kg

☐ D. 2.4 kg



9)

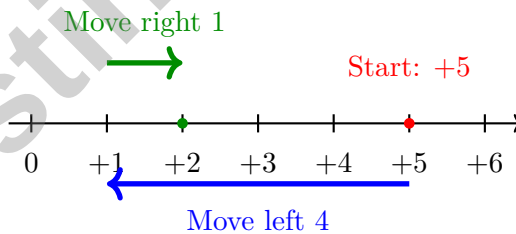
What is the side length s of this square?

☐ A. 4

☐ C. 6

☐ B. 5

☐ D. 7



10)

A number line shows a starting position of +5. A sequence of moves: left 4 units, then right 1 unit. What is the final position?

☐ A. +2

☐ C. -2

☐ B. +10

☐ D. +1



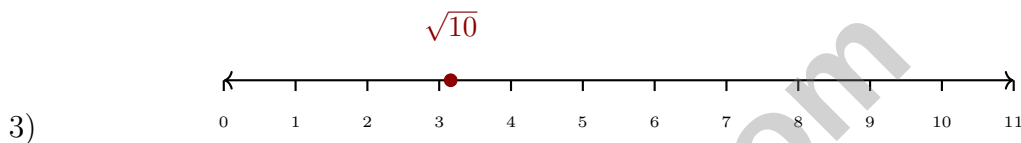
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1) A website's page load time decreases by 0.25 seconds per week. If the current load time is 3.5 seconds, what will it be after 4 weeks?

- ☐ A. 2.5 seconds ☐ C. 3.25 seconds
☐ B. 2.75 seconds ☐ D. 3.75 seconds

2) Which value of x is a solution to $x + 6 > 10$?

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



Which is the best estimate for $\sqrt{10}$?

- ☐ A. 3.0 ☐ C. 3.5
☐ B. 3.2 ☐ D. 4.0

4) A triangle with sides of 6 cm, 8 cm, and 11 cm is to be drawn. Which reason explains why exactly one such triangle exists?

- ☐ A. The sides satisfy the Triangle Inequality ☐ C. The triangle has no right angle
☐ B. Three specific side lengths uniquely determine a triangle ☐ D. The sides can be arranged in only one order

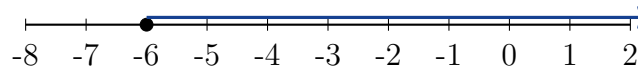


- 5) To simulate the probability of rolling a sum of 8 or higher with two dice, which initial step is necessary?
- ☐ A. Determine all possible outcomes that satisfy the condition
- ☐ B. Roll the dice only once
- ☐ C. Use only a spinner with 4 sectors
- ☐ D. Assume equal likelihood of all sums
- 6) A 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) A class took two different exams. Exam 1: median = 78. Exam 2: median = 78. Exam 1 range = 25. Exam 2 range = 8. What can we infer?
- ☐ A. Exam 1 was harder
- ☐ B. Exam 2 had more consistent student performance
- ☐ C. Students performed identically on both exams
- ☐ D. Exam 1 was easier
- 8) Three coins are flipped. What is the probability of getting at least one head?
- ☐ A. $\frac{1}{8}$
- ☐ B. $\frac{3}{8}$
- ☐ C. $\frac{6}{8}$
- ☐ D. $\frac{7}{8}$
- 9) A bag contains only red and blue marbles. A marble is drawn 150 times with replacement. Red appears 84 times. Based on this experiment, which is the best estimate of the probability of drawing a red marble on the next draw?
- ☐ A. 0.44
- ☐ B. 0.50
- ☐ C. 0.56
- ☐ D. 0.84

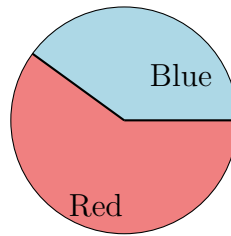


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1) Solve $4 + x \geq -2$ and identify the correct number line representation.



- ☐ A. Closed circle at -6 pointing right ☐ C. Closed circle at -6 pointing left
☐ B. Open circle at -6 pointing left ☐ D. Open circle at -6 pointing right



2)

A spinner is divided into two sectors: Blue (144°) and Red. What is $P(\text{Red})$?

- ☐ A. $\frac{144}{360}$ ☐ C. $\frac{2}{5}$
☐ B. $\frac{216}{360}$ ☐ D. $\frac{3}{4}$

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

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

4) Which probability best matches the phrase “even chance”?

- ☐ A. 0.2 ☐ C. 0.8
☐ B. 0.5 ☐ D. 0.9



5) An account balance starts at -50 dollars (debt). If you subtract another 20 dollars from this account, what is the new balance?

☐ A. -30 dollars

☐ B. -70 dollars

☐ C. 30 dollars

☐ D. 70 dollars

6) Identify the expression that is already simplified.

☐ A. $2x + 3x + 4y$

☐ B. $5a + 3a + 2b$

☐ C. $7m + 3n - 2p$

☐ D. $4c + 2c + 5c$

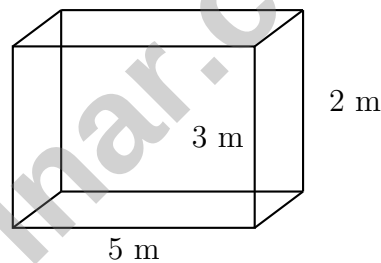
7) What is the GCF of $6xy$ and $9y$?

☐ A. $3y$

☐ B. $6y$

☐ C. $9y$

☐ D. $3xy$



8)

A rectangular prism with dimensions $5\text{ m} \times 3\text{ m} \times 2\text{ m}$ is shown above. Calculate its surface area.

☐ A. 30 m^2

☐ B. 62 m^2

☐ C. 84 m^2

☐ D. 120 m^2



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Connecticut 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 Connecticut Smarter Balanced practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.EE.1-7.EE.2) Product rule: $t^4 \cdot t^6 = t^{4+6} = t^{10}$.
- 2) **Choice C is correct.** (7.EE.1-7.EE.2) Check: A is complete (GCF of 32 and 48 is 16). B is complete (GCF of 21 and 14 is 7). D is complete (GCF of 6 and 9 is 3). C uses GCF of 3, but can factor further: GCF of 18 and 12 is actually 6, so the complete factorization is $6(3a + 2b)$.
- 3) **Choice C is correct.** (7.EE.3-7.EE.4) Subtract 10: $-3x = -9$. Divide by -3 : $x = 3$.
- 4) **Choice C is correct.** (7.EE.4a) Distribute: $5x - 10 = 35$. Add 10: $5x = 45$. Divide by 5: $x = 9$. (Distractor A: solving $x - 2 = 5$ instead; Distractor D: arithmetic error when isolating x .)
- 5) **Choice B is correct.** (7.EE.3-7.EE.4) Set up: $3m + 2 = 17$. Subtract 2: $3m = 15$. Divide by 3: $m = 5$ miles. Check: $3(5) + 2 = 15 + 2 = 17$ ✓. Reasonable: 5 miles at \$3/mile plus \$2 fee totals \$17.
- 6) **Choice D is correct.** (7.RP.1-7.RP.3) The unit-rate point (1, 0.8) shows that $k = 0.8$, so the equation is $y = 0.8x$.
- 7) **Choice A is correct.** (7.NS.1-7.NS.3) A loss of \$45 is represented as -45 . Dividing: $(-45) \div 5 = -9$ means each owes \$9 (or is owed \$-9).
- 8) **Choice C is correct.** (7.NS.1-7.NS.3) Paper weight: $4.2 \times \frac{3}{7} = \frac{12.6}{7} = 1.8$ kg.
- 9) **Choice B is correct.** (7.NS.1-7.NS.3) If area = 25, then $s^2 = 25$, so $s = \sqrt{25} = 5$.
- 10) **Choice A is correct.** (7.NS.1-7.NS.3) Final position = $5 - 4 + 1 = 2$.
- 11) **Choice A is correct.** (7.NS.1-7.NS.3) $12 \times 10^{-6} = 1.2 \times 10^{-5} = 0.000012$. Adjusting the coefficient and exponent by one power of 10 yields the equivalent form.
- 12) **Choice A is correct.** (7.EE.4a) The student reversed the roles of the coefficient and constant. The per-book charge \$3 multiplies the number of books b .
- 13) **Choice B is correct.** (7.SP.1-7.SP.4) Pictograph: 7.5 stars $\times$ 50 votes/star = 375 votes for A; 6 stars $\times$ 50 votes/star = 300 votes for B. Symbol counts must be multiplied by the legend value.
- 14) **The correct answer is \$1102.50.** (7.RP.3) Year 1: $1000 \times 1.05 = 1050$. Year 2: $1050 \times 1.05 = 1102.50$.
- 15) **Choice C is correct.** (7.SP.5-7.SP.8) Blue: 5 sections, red: 3 sections. Total favorable: $5 + 3 = 8$. $P(\text{blue or red}) = \frac{8}{12} = \frac{2}{3}$.
- 16) **Choice B is correct.** (7.EE.1-7.EE.2) The decimal 0.95 means keeping 95% of the price (removing 5%). This is the same as $p - 0.05p = (1 - 0.05)p = 0.95p$. Both forms show a 5% discount: one expanded (subtract the discount), one simplified (multiply by the remaining scale factor).
- 17) **The correct answer is 2.** (7.NS.1-7.NS.3) $-8 + 15 - 5 = 7 - 5 = 2^\circ\text{C}$.
- 18) **Choice A is correct.** (7.SP.3) Histogram centers show average. North Side (15–25) shifts left of South Side (25–35). The difference in centers is approximately 10 plants (midpoints: 20 vs. 30).
- 19) **Choice D is correct.** (7.RP.3) Commission = commission rate $\times$ base price = $0.03 \times 22000 = \$660$. The documentation fee does not affect the commission base.
- 20) **The correct answer is B, C.** (7.NS.2) A: FALSE—three negatives give one negative. B: TRUE—two negatives cancel (positive); two positives remain positive. C: TRUE—always negative. D: FALSE— $(-5) \times (-2) \times (-1) = 10 \times (-1) = -10$, not 10.
- 21) **Choice B is correct.** (7.SP.1-7.SP.4) There are 14 values. Lower half: 43, 47, 52, 55, 58, 61, 64 (7 values). Median of lower half (Q1) is the 4th value: 55.
- 22) **Choice D is correct.** (7.RP.1-7.RP.3) Cost = $\frac{3}{4} \times 4 = 3$ dollars.
- 23) **Choice A is correct.** (7.G.4-7.G.6) Square: $15 \times 15 = 225 \text{ cm}^2$. Notch: $4 \times 3 = 12 \text{ cm}^2$. Hole: $3.14 \times 4 = 12.56 \text{ cm}^2$. Remaining: $225 - 12 - 12.56 = 200.44 \text{ cm}^2$.
- 24) **The correct answer is 4.** (7.EE.1-7.EE.2) Expansion: $-2(3x) - 2(-5) = -6x + 10$. Evaluation: $-6(1) + 10 = -6 + 10 = 4$. Verify by substituting into original: $-2(3 - 5) = -2(-2) = 4$ ✓.
- 25) **Choice C is correct.** (7.G.1-7.G.5) By the Triangle Inequality, the sum of the two shorter sides must exceed the longest side.
- 26) **Choice A is correct.** (7.G.4-7.G.6) $\pi \approx 3.14159 \dots$. The common approximations are 3.14 and $\frac{22}{7} \approx 3.142857$.



Hi, Progress Maker!

◇ You have done more than complete a set of tests. You have rehearsed the habits that make Grade 7 math feel less surprising. ◇

★ **Remember this:** Progress is not always loud. Sometimes it looks like fewer careless errors, clearer work, better pacing, and more confidence when a problem is unfamiliar. You practiced across 8 full Grade 7 practice tests, and that repeated effort matters. ★

Signs of Growth

- **Clear Work:** Your steps are easier to follow.
- **Better Pacing:** You know when to move on and return.
- **Stronger Checks:** You catch mistakes earlier.
- **Calmer Thinking:** You know what to try next.

Grade 7 test-day tip: Keep one short list of mistakes you often make, then check that list before each practice session.

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

Jay Daie

Your Growth 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.

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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