

10

Connecticut

Smarter Balanced

GRADE

7

MATH

PRACTICE TESTS

Standards Aligned Problem
Solving For Comprehensive
Assessment Programs



10 PRINTED TESTS

Realistic practice to build
confidence and mastery



2 ONLINE TESTS

Extra practice for
continued success



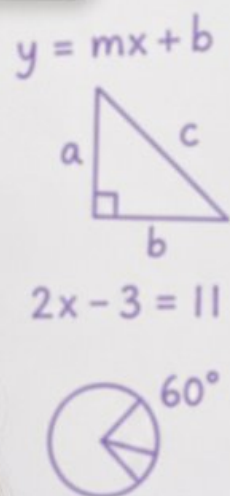
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step
solutions



FOCUSED & EFFECTIVE

Target key math skills
with purposeful practice



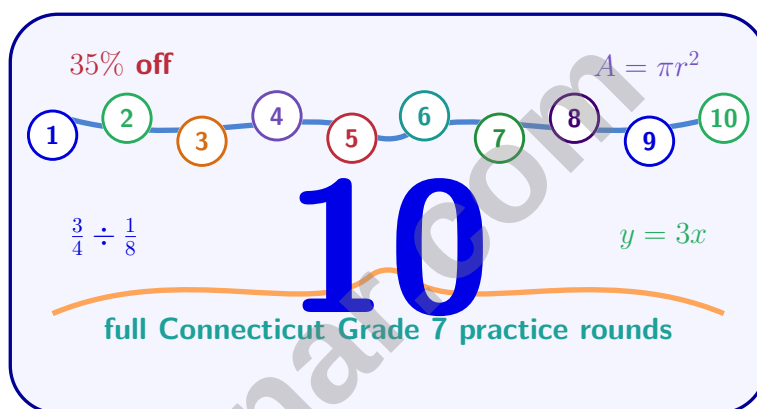
10 PRINTED TESTS
+2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 Connecticut Smarter Balanced Grade 7 Math Practice Tests

Connecticut Grade 7 Smarter Balanced Practice for precise Grade 7 practice in rates, percents, expressions, geometry, inference, and probability



Ten 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!

Ten focused rounds for sharper Connecticut Smarter Balanced math thinking

This book gives you ten 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

A ten-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?

Ten Connecticut Smarter Balanced tests, 400 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 7–9	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Connecticut 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. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



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1) Which pair of scales would produce drawings of the same size from the same actual object?

☐ A. 1 cm : 4 m and 2 cm : 6 m

☐ C. 3 mm : 1 m and 6 mm : 3 m

☐ B. 1 in : 12 ft and 1 in : 24 ft

☐ D. $\frac{1}{4}$ in : 1 ft and $\frac{1}{2}$ in : 2 ft

2) What is the exponent when 8.9 is used as the coefficient in scientific notation for 8,900,000,000?

☐ A. 8

☐ C. 10

☐ B. 9

☐ D. 11

3) A circle has a radius of 11 cm. Calculate its diameter.

4) What is $-2(3 + 5)$?

☐ A. -16

☐ C. 1

☐ B. -6

☐ D. 16

5) A line graph shows the cost of a movie ticket over 10 years (2014–2024): \$8, \$8.50, \$9, \$9.50, \$10, \$10.25, \$10.50, \$11, \$11.50, \$12. Which year shows the smallest increase from the previous year?

☐ A. 2015 (increase of \$0.50)

☐ C. 2019 (increase of \$0.25)

☐ B. 2018 (increase of \$0.50)

☐ D. 2020 (increase of \$0.50)



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6) A six-sided die shows the numbers 1, 1, 2, 3, 3, 3 on its faces. What is the probability of rolling a 1?

- ☐ A. $\frac{1}{6}$
☐ B. $\frac{2}{5}$

- ☐ C. $\frac{2}{6}$
☐ D. $\frac{1}{2}$

7) A beverage vendor mixes drinks using one flavor (Cherry, Lime, or Orange) and one temperature (Hot or Cold). A customer drinks 3 of the 6 possible combinations. How many combinations remain untasted?

- ☐ A. 2
☐ B. 3

- ☐ C. 4
☐ D. 5

8) A student has a $\frac{2}{3}$ probability of passing math and a $\frac{3}{4}$ probability of passing history. Assuming independence, what is the probability of passing EXACTLY ONE of these two subjects?

- ☐ A. $\frac{1}{2}$
☐ B. $\frac{5}{12}$

- ☐ C. $\frac{7}{12}$
☐ D. $\frac{11}{12}$

9) A bag contains marbles. In an experiment with replacement, a red marble was drawn 45 times out of 300 draws. If the experiment is repeated with 600 draws, approximately how many red marbles would be expected?

Draws	300	$\xrightarrow{\times 2}$	600
Red draws	45	$\xrightarrow{\times 2}$	?

- ☐ A. 45
☐ B. 90

- ☐ C. 135
☐ D. 180



- 10) A scout estimated that a hiking trail is 7.5 miles long, but the actual length is 8.25 miles. What is the percent error?
- ☐ A. 90.9% ☐ C. 0.75%
- ☐ B. 10% ☐ D. 9.1%
- 11) Expand: $7(2p + 3)$
- ☐ A. $14p + 3$ ☐ C. $14p + 21$
- ☐ B. $14p + 10$ ☐ D. $9p + 10$
- 12) How much principal is needed to earn \$1000 in simple interest at 8% annually over 5 years?
- ☐ A. \$2000 ☐ C. \$3000
- ☐ B. \$3500 ☐ D. \$2500
- 13) Simplify: $3 - (-3)$
- ☐ A. 0 ☐ C. -6
- ☐ B. 3 ☐ D. 6
- 14) A floor plan uses a scale of $\frac{1}{4}$ inch to 1 foot. If a hallway on the plan is 1.5 inches long, what is the actual length?
- ☐ A. 8 feet ☐ C. 2 feet
- ☐ B. 4 feet ☐ D. 6 feet
- 15) A restaurant bill is \$50. If you tip 18%, what is the tip amount?
- ☐ A. \$5 ☐ C. \$9
- ☐ B. \$6 ☐ D. \$12



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1) The equation $y = -2x$ describes a proportional relationship. Which point lies on the line?

☐ A. $(-1, -2)$

☐ C. $(0, 2)$

☐ B. $(2, 4)$

☐ D. $(1, -2)$

2) A student is analyzing a histogram showing GPA distribution for two graduating classes. Class of 2023: concentrated at 3.2–3.8. Class of 2024: concentrated at 3.0–3.6. Which statement is a valid comparison?

☐ A. Class 2023 has a higher typical GPA than Class 2024

☐ C. Both classes have identical GPAs

☐ B. Class 2024 performed better overall

☐ D. GPA cannot be compared between classes

3) 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

4) A triangular prism has a volume of 240 cm^3 and a depth of 10 cm. What is the area of the triangular base?

☐ A. 12 cm^2

☐ C. 36 cm^2

☐ B. 24 cm^2

☐ D. 48 cm^2

5) Expand: $3(x + 5)$

☐ A. $3x + 5$

☐ C. $3x + 15$

☐ B. $3x + 8$

☐ D. $x + 15$

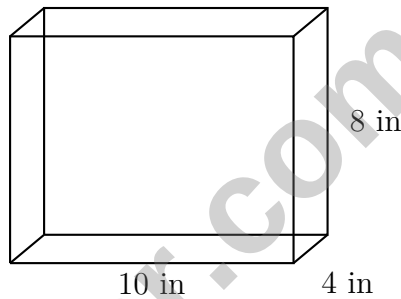


6) A student simplifies $6x + 2x - 4x$ and gets $4x$. Is this correct?

- ☐ A. Yes, all terms were combined correctly.
- ☐ B. No, the correct answer is $12x$.
- ☐ C. No, the correct answer is $3x$.
- ☐ D. No, the answer cannot be simplified.

7) Which shows $20y + 24$ factored completely?

- ☐ A. $4(5y + 6)$
- ☐ B. $2(10y + 12)$
- ☐ C. $8(2.5y + 3)$
- ☐ D. $6(3.33y + 4)$



8)

The rectangular prism shown has dimensions $10\text{ in} \times 8\text{ in} \times 4\text{ in}$. Calculate the surface area.

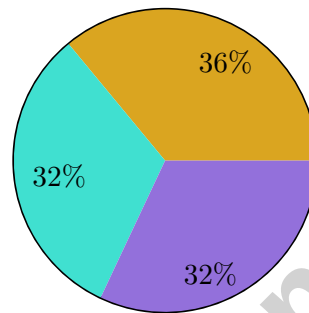
- ☐ A. 320 in^2
- ☐ B. 304 in^2
- ☐ C. 240 in^2
- ☐ D. 160 in^2



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- 1) A restaurant bill is \$120 before tax and tip. The customer pays 8% sales tax and then adds a 15% tip on the pre-tax bill. What is the total amount paid?

☐ A. \$129.60 ☐ C. \$147.60
☐ B. \$139.20 ☐ D. \$148.80



2)

The circle graph shows subscription type preferences. Gold is premium (36%), turquoise is standard (32%), and purple is basic (32%). If 2500 customers subscribe, how many have premium subscriptions?

☐ A. 700 ☐ C. 900
☐ B. 800 ☐ D. 1000

- 3) A healthcare provider wants to estimate the average cholesterol level of all adults in a city. Surveying only patients at a heart disease clinic would introduce:

☐ A. Sampling error ☐ C. Measurement error
☐ B. Selection bias ☐ D. Response error

- 4) Which expression is equivalent to $(4b + 7) + (6b - 12) - (2b + 1)$?

☐ A. $8b - 6$ ☐ C. $8b + 18$
☐ B. $10b - 6$ ☐ D. $10b - 8$



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5) Simplify: $\frac{(u^4)^2}{u^3}$

☐ A. u^5

☐ C. u^8

☐ B. u^{11}

☐ D. u^{24}



6) Total cost T

A dance studio charges per-class fees shown in the bar model. If there's a \$20 registration fee and \$4.50 per class, which equation shows the total cost T for n classes?

☐ A. $T = 4.50n + 20$

☐ C. $T = 4.50 + 20n$

☐ B. $T = 20n + 4.50$

☐ D. $T = (4.50 + 20)n$

7) Which pair of equations is equivalent (have the same solution)?

☐ A. $2x + 6 = 16$ and $2x = 8$

☐ C. $5x + 3 = 28$ and $5x = 25$

☐ B. $3x - 4 = 8$ and $3x = 4$

☐ D. $4x - 2 = 10$ and $4x = 14$

8) If $\frac{7}{x} = \frac{35}{100}$, what is x ?



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 D is correct.** (7.G.1-7.G.5) Both scales simplify to the same ratio. D: $\frac{1}{4}$ in : 1 ft = $\frac{1}{4}$ in : 12 in = 1 : 48. And $\frac{1}{2}$ in : 2 ft = $\frac{1}{2}$ in : 24 in = 1 : 48. Both produce the same drawing size. A produces different sizes (1 : 400 vs. 1 : 300), B produces different sizes, C produces different sizes (1 : 333.3 vs. 1 : 500).
- 2) **Choice B is correct.** (7.NS.1-7.NS.3) $8,900,000,000 = 8.9 \times 10^9$. Count 9 places from right of first digit to decimal point.
- 3) **The correct answer is 22.** (7.G.4-7.G.6) Use the formula $d = 2r$: $d = 2 \times 11 = 22$ cm.
- 4) **Choice A is correct.** (7.NS.2) $-2(3 + 5) = -2(8) = -16$ or $-2(3) + (-2)(5) = -6 + (-10) = -16$.
- 5) **Choice C is correct.** (7.SP.1-7.SP.4) Comparing year-to-year increases: 2015 (+\$0.50), 2016 (+\$0.50), 2017 (+\$0.50), 2018 (+\$0.50), 2019 (+\$0.25), 2020 (+\$0.25), 2021 (+\$0.50), 2022 (+\$0.50), 2023 (+\$0.50), 2024 (+\$0.50). The year 2019 shows the smallest single increase at \$0.25.
- 6) **Choice C is correct.** (7.SP.5-7.SP.8) Faces showing 1: 2 out of 6. $P(\text{rolling } 1) = \frac{2}{6} = \frac{1}{3}$.
- 7) **Choice B is correct.** (7.SP.5-7.SP.8) Total combinations: $3 \times 2 = 6$. Tasted: 3. Remaining: $6 - 3 = 3$ combinations.
- 8) **Choice B is correct.** (7.SP.5-7.SP.8) Pass math AND fail history: $\frac{2}{3} \cdot \frac{1}{4} = \frac{2}{12}$. Fail math AND pass history: $\frac{1}{3} \cdot \frac{3}{4} = \frac{3}{12}$. Total: $\frac{2}{12} + \frac{3}{12} = \frac{5}{12}$.
- 9) **Choice B is correct.** (7.SP.6) Experimental probability = $\frac{45}{300} = 0.15$. Expected draws in 600: $0.15 \times 600 = 90$.
- 10) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|7.5 - 8.25|}{8.25} \times 100\% = \frac{0.75}{8.25} \times 100\% \approx 9.1\%$.
- 11) **Choice C is correct.** (7.EE.1-7.EE.2) Distribute 7: $7(2p) + 7(3) = 14p + 21$.
- 12) **Choice D is correct.** (7.RP.3) $1000 = P \times 0.08 \times 5 \Rightarrow 1000 = 0.4P \Rightarrow P = \2500 .
- 13) **Choice D is correct.** (7.NS.1-7.NS.3) $3 - (-3) = 3 + 3 = 6$.
- 14) **Choice D is correct.** (7.RP.1-7.RP.3) The scale $\frac{1}{4}$ inch : 1 foot means 1 inch : 4 feet. So $1.5 \times 4 = 6$ feet.
- 15) **Choice C is correct.** (7.RP.3) The tip is 18% of \$50: $0.18 \times 50 = 9$ dollars.
- 16) **Choice C is correct.** (7.NS.1b) Net change = $12 + (-7) + 6 = 12 - 7 + 6 = 5 + 6 = 11$ boxes. The warehouse has a net gain of 11 boxes.
- 17) **The correct answer is 14.** (7.G.4-7.G.6) $C = 2\pi r \Rightarrow 88 = 2 \times \frac{22}{7} \times r \Rightarrow 88 = \frac{44}{7}r \Rightarrow r = 88 \times \frac{7}{44} = 14$ cm.
- 18) **Choice A is correct.** (7.EE.1) Combine: $(-3 + 5 - 1 + 2)x = 3x$.
- 19) **Choice A is correct.** (7.EE.1-7.EE.2) The GCF of 16, 24, and 8 is 8. Factor: $16a + 24b + 8 = 8(2a + 3b + 1)$.
- 20) **Choice C is correct.** (7.SP.1-7.SP.4) 38% of 750 = $0.38 \times 750 = 285$ students.
- 21) **The correct answer is A,C.** (7.SP.3) A is correct: both groups have median = 30. C is correct: Group Beta's max is 55 vs. Alpha's 50. B is wrong: Group Beta's range (55-15=40) exceeds Group Alpha's (50-10=40), and IQR is similar, so they have comparable variability. D is wrong: Alpha's min (10) is less than Beta's (15).
- 22) **Choice D is correct.** (7.RP.3) Simple interest = $P \times r \times t = \$1,000 \times 0.05 \times 1 = \50 .
- 23) **Choice C is correct.** (7.NS.1-7.NS.3) Add in order: First, $-1.5 + 3.2 = 1.7$. Then, $1.7 + (-0.8) = 1.7 - 0.8 = 0.9$ points.
- 24) **The correct answer is 20.** (7.G.4-7.G.6) $V = \pi r^2 h \Rightarrow 565.2 = 3.14 \times 9 \times h \Rightarrow 565.2 = 28.26h \Rightarrow h = 20$ feet.
- 25) **The correct answer is 0.07.** (7.SP.1-7.SP.4) Compute $0.15 - 0.08 = 0.07$.
- 26) **Choice A is correct.** (7.NS.1-7.NS.3) $\frac{4}{5} \div 2 = \frac{4}{5} \times \frac{1}{2} = \frac{4}{10} = \frac{2}{5}$.
- 27) **Choice A is correct.** (7.NS.2d) Divide $7 \div 12 = 0.58333\ldots = 0.5\overline{83}$. Since $12 = 2^2 \times 3$, the 3 causes repetition.
- 28) **Choice C is correct.** (7.NS.1-7.NS.3) Loss of 7 yards is -7; gain of 13 is +13: $-7 + 13 = 6$ yards.
- 29) **Choice D is correct.** (7.EE.1-7.EE.2) Substitute: $\frac{6+10}{2} = \frac{16}{2} = 8$.
- 30) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute the negative: $6n + 4 - 3n + 2 = (6n - 3n) + (4 + 2) = 3n + 6$.



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Hi, Math Hero!

◇ This full-length book gave you ten complete 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 10 full-length Math practice tests and 2 extra 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:

10 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
- ✓ Fractions & Decimals
- ✓ Percents
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ And More!



2 EXTRA 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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BRIGHTLY

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