

6 Nevada

Smarter Balanced

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS



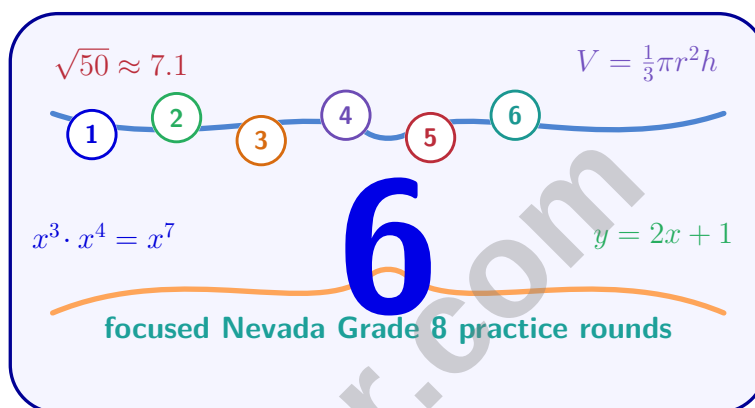
2 ONLINE
TESTS



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

6 Nevada Smarter Balanced Grade 8 Math Practice Tests

Focused Grade 8 Standards Practice with Explanations and Mixed Review



Six complete 40-question Grade 8 Smarter Balanced practice rounds with real numbers, exponents, scientific notation, equations, functions, transformations, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Nevada Grade 8 Problem Solver!

Six focused rounds for sharper Smarter Balanced math thinking

This book gives you six full Grade 8 Smarter Balanced math practice tests. Each round is built to help you recognize structure, reason with real numbers and exponents, analyze linear relationships, connect equations with graphs, and explain your thinking with care.

Your Nevada 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 six-session plan for confident Grade 8 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 an exponent rule, equation, graph, transformation, diagram, 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.

Nevada 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?

Six Smarter Balanced tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

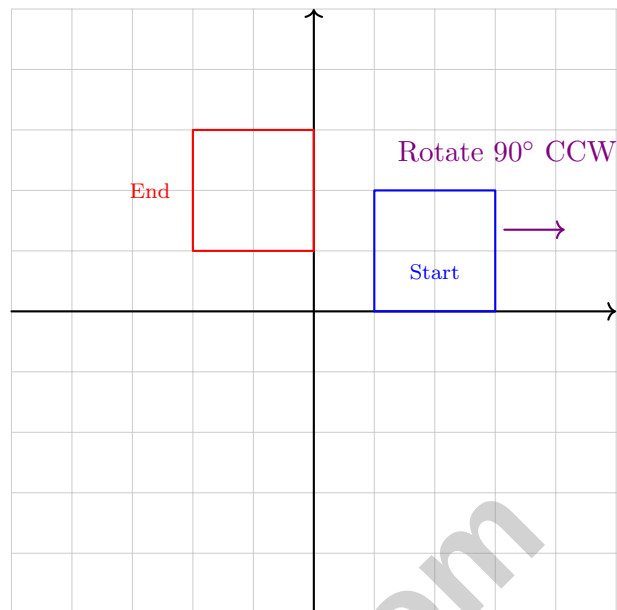
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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For more practice
& answers

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1)

After the rotation shown, which of the original vertices maps to the new vertex at $(-2, 3)$?

☐ A. $(1, 0)$ ☐ C. $(3, 2)$ ☐ B. $(3, 0)$ ☐ D. $(1, 2)$

2) Two trend-line slopes are 1.2 and 1.1. What is their difference?



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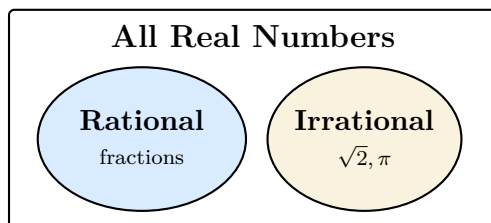
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Venn Diagram



3)

Which number belongs in the Irrational circle?

- ☐ A. -4 (negative integer) ☐ C. $\sqrt{23}$ (square root)
☐ B. $\frac{7}{9}$ (fraction) ☐ D. 2.25 (decimal)

4) If $x^2 = 144$ and $y^3 = 64$, what is $x + y$ (taking positive values)?

- ☐ A. 22 ☐ C. 20
☐ B. 18 ☐ D. 16

5) Solve for x : $-5x + 12 = -2x - 6$

- ☐ A. $x = -6$ ☐ C. $x = -2$
☐ B. $x = 2$ ☐ D. $x = 6$

6)

Candidate	Square
9.3	86.49
9.4	88.36

 $\sqrt{88}$ is between 9 and 10. Is it closer to 9.3 or 9.4?

- ☐ A. 9.3 ☐ C. Equally close
☐ B. Cannot determine ☐ D. 9.4



7) Which is the best estimate of $\sqrt{2} \times \sqrt{3}$?

☐ A. 2.0

☐ C. 3.0

☐ B. 5.0

☐ D. 2.4

8) Which loan option has the lowest total cost (principal + interest) for borrowing \$2,000?

☐ A. 12% APR for 1 year (total cost: \$2,240)

☐ C. 6% APR for 3 years (total cost: \$2,360)

☐ B. 8% APR for 2 years (total cost: \$2,320)

☐ D. 4% APR for 4 years (total cost: \$2,320)

9) Simplify using the laws of exponents: $\frac{x^7}{x^3}$

☐ A. x^{10}

☐ C. x^4

☐ B. x^{21}

☐ D. x^{-4}

10) Write 0.000284 in scientific notation.

☐ A. 2.84×10^4

☐ C. 28.4×10^{-5}

☐ B. 2.84×10^{-3}

☐ D. 2.84×10^{-4}



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1) Simplify $(3x^2)^2 \cdot x^{-3}$.

☐ A. $9x^{-3}$ or $\frac{9}{x^3}$

☐ B. $9x^4$

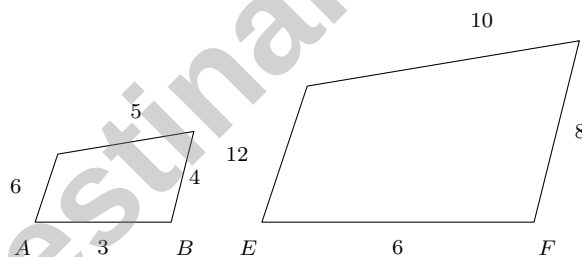
☐ C. $9x^1$ or $9x$

☐ D. $3x^4$

2) A transversal cuts two parallel lines. Three angles formed at the lower intersection are a , b , and c . If $a = 64^\circ$, find the measures of angles that are (1) vertical to a , (2) supplementary to a , and (3) alternate interior to a (on the upper line).



3) Two quadrilaterals are shown. Quadrilateral $ABCD$ has sides 3, 4, 5, 6. Quadrilateral $EFGH$ has corresponding sides 6, 8, 10, 12, and their corresponding angles are congruent. Are they similar?



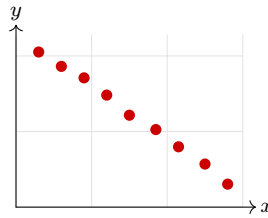
☐ A. No, angles are different

☐ B. Yes, all sides are in ratio 1 : 2

☐ C. Cannot tell without angles

☐ D. Only if both are trapezoids





4)

A scatter plot of battery life (hours) versus daily phone usage (hours) shows points forming a tight downward trend from upper left to lower right. What does this pattern tell you?

- ☐ A. Battery life improves with more usage ☐ C. Weak relationship between usage and battery
☐ B. Phone usage does not affect battery life ☐ D. Increased usage is associated with shorter battery life

5) A two-way table with 280 people:

	Owens Phone	No Phone	Total
Age 13–17	175	21	196
Age 18+	78	6	84
Total	253	27	280

Among those who own a phone, what is the relative frequency for ages 13–17, rounded to the nearest hundredth?

- ☐ A. 0.62 ☐ C. 0.78
☐ B. 0.69 ☐ D. 0.89

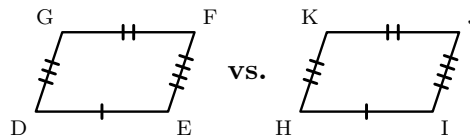


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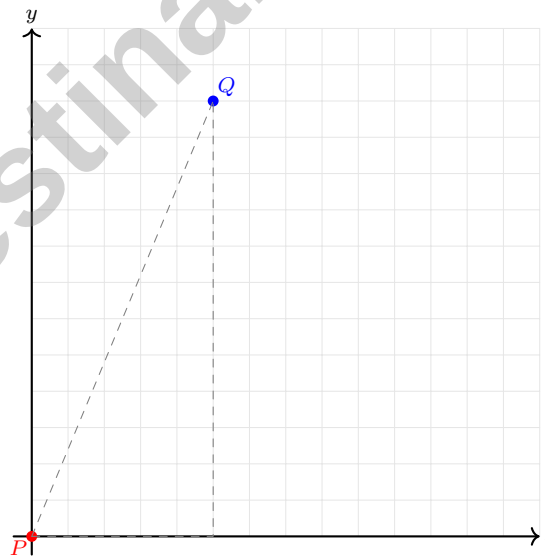
1) Is $\sqrt{10}$ greater than or less than 3.1?

- ☐ A. Cannot be determined ☐ C. Equal to
☐ B. Less than ☐ D. Greater than

2) Quadrilateral DEFG is congruent to quadrilateral HIJK. A student wrote $DEFG \cong IJKH$. Which error did the student make?



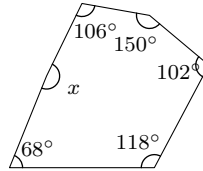
- ☐ A. $DEFG \cong HIJK$ (correct order) ☐ C. $DEFG \cong KJHI$ (wrong order)
☐ B. $DEFG \cong IJKH$ (wrong vertex order) ☐ D. $DEFG \cong IHKJ$ (completely wrong order)
- 3) Two points are plotted on a coordinate grid: $P = (0, 0)$ and $Q = (5, 12)$. What is the distance from P to Q rounded to the nearest tenth?



- ☐ A. 12.9 ☐ C. 17.0
☐ B. 13.0 ☐ D. 8.5



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& answers



4)

A hexagon has five interior angles: 68° , 118° , 102° , 150° , 106° . What is the sixth angle?

☐ A. 172° ☐ C. 180° ☐ B. 176° ☐ D. 184°

5) Trapezoid $PQRS$ is similar to Trapezoid $TUVW$ with scale factor $\frac{3}{2}$. If $PQ = 8$ cm in trapezoid $PQRS$, what is the length of TU in trapezoid $TUVW$?

☐ A. 12 cm☐ C. 8 cm☐ B. 5.33 cm☐ D. 10.67 cm

6) In a right triangle, the legs are each $\sqrt{8}$. What is the hypotenuse?

☐ A. 4☐ C. $2\sqrt{2}$ ☐ B. $\sqrt{16}$ ☐ D. 8

7) Factor $x^2 + 2x - 8$.

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

8) A bicycle rental costs \$20 per day plus a \$15 deposit. Which equation gives total cost C for d days?

☐ A. $C = 20d + 15$ ☐ C. $C = 35d$ ☐ B. $C = 15d + 20$ ☐ D. $C = 20d - 15$ 

Nevada Smarter Balanced Grade 8 Practice Test Answer Keys

How to use this section with a Grade 8 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 Nevada Smarter Balanced practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (8.G.A.1) A 90° CCW rotation uses $(x, y) \rightarrow (-y, x)$. So $(3, 2) \rightarrow (-2, 3)$.
- 2) **The correct answer is 0.1.** (8.SP.A.2) Compute $1.2 - 1.1 = 0.1$.
- 3) **Choice C is correct.** (8.NS.A.1) $\sqrt{23}$ is irrational because 23 is not a perfect square. The other values are all rational: -4 is an integer, $\frac{7}{9}$ is a fraction, and $2.25 = \frac{9}{4}$ is a terminating decimal.
- 4) **Choice D is correct.** (8.EE.A.2) $x = \sqrt{144} = 12$ and $y = \sqrt[3]{64} = 4$, so $x + y = 12 + 4 = 16$.
- 5) **Choice D is correct.** (8.EE.C.7) Subtract $-2x$ (add $2x$) and subtract 12: $-3x = -18$. Divide by -3 : $x = 6$.
- 6) **Choice D is correct.** (8.NS.A.2) $9.3^2 = 86.49$ and $9.4^2 = 88.36$. Since 88 is closer to 88.36, $\sqrt{88} \approx 9.38 \approx 9.4$.
- 7) **Choice D is correct.** (8.NS.A.2) $\sqrt{2} \times \sqrt{3} = \sqrt{6} \approx 2.45$.
- 8) **Choice A is correct.** (8.G.B.7) Interest costs: A: \$240 (total \$2,240); B: \$320 (total \$2,320); C: \$360 (total \$2,360); D: \$320 (total \$2,320). Option A has the lowest total cost.
- 9) **Choice C is correct.** (8.EE.A.1) When dividing powers with the same base, subtract exponents: $\frac{x^7}{x^3} = x^{7-3} = x^4$.
- 10) **Choice D is correct.** (8.EE.A.3) Move the decimal 4 places right to get 2.84; the exponent is negative 4 (because the original number is less than 1).
- 11) **Choice D is correct.** (8.EE.B.5) $k = \frac{y}{x} = \frac{9}{2}$. The line passes through origin and $(2, 9)$.
- 12) **Choice B is correct.** (8.F.A.1) Domain is the set of all input (x) values: $-2, 0, 2, 4$. Range is the set of all output (y) values: $0, 4$.
- 13) **Choice A is correct.** (8.F.A.3) $y = \frac{7}{2}x - 6$ is linear with slope $\frac{7}{2}$ and y -intercept -6 . Option B expands to $y = x^2 - x$ (nonlinear), and C and D are exponential and rational functions.
- 14) **Choice D is correct.** (8.EE.B.5) The rate of change is $+3$ points per hour of study. The slope is 3.
- 15) **Choice C is correct.** (8.EE.C.8c) Since both equations are already solved for y , substitution (setting them equal) is immediate: $2x - 3 = -x + 6$, so $3x = 9$, and $x = 3$. Elimination would require rearranging; graphing is slower for exact answers.
- 16) **Choice B is correct.** (8.F.A.1) Since $1 \leq 2 < 4$, we use the second rule: $n(2) = 5$.
- 17) **Choice B is correct.** (8.G.C.9) Cube SA = 24 m^2 , rectangular prism SA = 40 m^2 . Subtract the two shared faces: $24 + 40 - 2(4) = 56 \text{ m}^2$.
- 18) **Choice C is correct.** (8.EE.B.6) Perpendicular slopes are negative reciprocals. The negative reciprocal of $\frac{3}{4}$ is $-\frac{4}{3}$.
- 19) **Choice A is correct.** (8.EE.C.8b) Subtract 6: $-2x \geq -8$. Divide by -2 (FLIP): $x \leq 4$.
- 20) **Choice A is correct.** (8.EE.C.8b) Substitute $(0, 0)$: $2(0) + 3(0) = 0$ ✓. The origin is on the line.
- 21) **The correct answer is $\frac{1}{2}$.** (8.G.B.7) Sample space: HH, HT, TH, TT. Exactly one heads: HT, TH. That's 2 of 4. $P = \frac{1}{2}$.
- 22) **The correct answer is A, C.** (8.G.A.4) Correct: (A) All linear measurements (sides, perimeter) are multiplied by 2.5. (C) Area is multiplied by $(2.5)^2 = 6.25$. Incorrect: (B) Angles are congruent in dilation, not scaled. (D) Perimeter is multiplied, not divided, by 2.5. (E) Dilation preserves shape; polygon type does not change.
- 23) **Choice B is correct.** (8.F.A.2) $f(20) = 100 + 8(20) = 260$. $g(20) = 95 + 10(20) = 295$. Since $295 > 260$, g is larger.
- 24) **Choice B is correct.** (8.G.C.9) Sphere: $V_s = \frac{4}{3}\pi r^3$. Cylinder: $V_c = \pi r^2(2r) = 2\pi r^3$. Ratio: $\frac{V_c}{V_s} = \frac{2\pi r^3}{\frac{4}{3}\pi r^3} = \frac{2 \times 3}{4} = 1.5$.
- 25) **Choice B is correct.** (8.SP.A.3) The line crosses the y -axis at approximately $y = 2$, representing the base shipping cost.
- 26) **Choice C is correct.** (8.EE.A.4) Multiply coefficients: $2 \times 3 \times 5 = 30 = 3 \times 10^1$. Add exponents: $10^{2+3+1} = 10^6$. Combine: $3 \times 10^1 \times 10^6 = 3 \times 10^7$.
- 27) **Choice C is correct.** (8.EE.C.8a) The second equation is exactly 2 times the first equation. They represent the same line, so the system has infinitely many solutions.
- 28) **Choice A is correct.** (8.EE.C.7) Sum of areas: $x^2 + 2x + 4x + 8 = x^2 + 6x + 8$.



Hi, Momentum Builder!

◇ Finishing a Grade 8 practice book is not a small thing. It means you practiced persistence, patience, and flexible problem solving. ◇

★ **Remember this:** Some questions were quick. Others probably made you stop and think. Both kinds helped you grow because practice turns effort into confidence. This version gave you 6 opportunities to rehearse test-day habits. ★

Momentum Habits

- **Start Clean:** Write down what the problem gives you.
- **Pick a Tool:** Use a table, model, equation, or graph.
- **Keep Moving:** Skip and return when needed.
- **Review Smart:** Study mistakes without judging yourself.

Grade 8 test-day tip: If a problem feels stuck, change tools. A graph, table, or sketch can make the same idea clearer.

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

Jay Daie

Your Math Momentum Partner

PRACTICE TODAY. ACHIEVE TOMORROW.

6

Give your child the confidence and skills they need with **6 full-length Grade 8 Math** practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!

WHAT'S INSIDE?



Standards-Aligned Practice

Questions designed to cover essential Grade 8 math standards.



Variety of Question Types

Multiple-choice, short answer, and more to build well-rounded skills.



Real-World Applications

Engaging problems that connect math to everyday life.



Step-by-Step Progress

Track improvement and build confidence with every test.



COVERS ALL ESSENTIAL TOPICS

- | | |
|---------------------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
| | ✓ And More! |



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2 ONLINE TESTS



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