

NEVADA

Smarter Balanced

GRADE 8 MATH

PRACTICE TESTS

5

PRINTED
TESTS



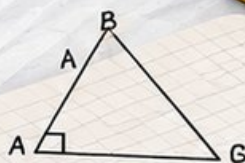
2

 ONLINE
TESTS

**Standards Aligned
Problem Solving For
Comprehensive Assessment Programs**



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



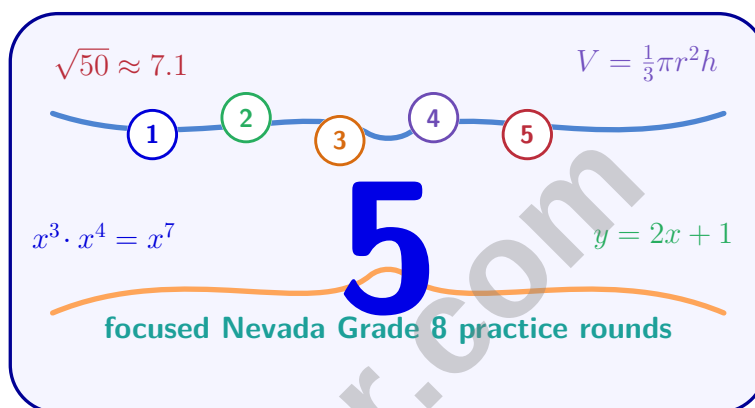
$$a^2 + b^2 = c^2$$



$$y = mx + b$$

5 Nevada Smarter Balanced Grade 8 Math Practice Tests

Five Smarter Balanced Rounds for Equations, Functions, and Geometry



Five 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!

Five focused rounds for sharper Smarter Balanced math thinking

This book gives you five 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 five-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?

Five Smarter Balanced tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–5	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) Consider the set $\{(a, 1), (b, 2), (c, 1), (d, 3)\}$ where a, b, c, d are distinct. Is this a function?
- ☐ A. No, because output 1 appears twice. ☐ D. Yes, output can repeat; each input must be unique.
- ☐ B. Yes, because all inputs are distinct. ☐ C. No, because there are four pairs.
- 2) An online music streaming service charges per song. A listener downloads 8 songs for \$9.60. What is the cost per song?
- ☐ A. \$1.00 ☐ C. \$1.20
- ☐ B. \$1.10 ☐ D. \$1.30
- 3) Which equation is LINEAR?
- ☐ A. $y = 3x^2$ ☐ C. $y = 6x - 9$
- ☐ B. $y = \frac{2}{x}$ ☐ D. $y = \sqrt{2x}$
- 4) A ladder leans against a wall. The slope of the ladder line is undefined. What does this indicate?
- ☐ A. The ladder is horizontal ☐ C. The ladder is at a 45° angle
- ☐ B. The ladder is on the ground ☐ D. The ladder is vertical
- 5) Alice, Bob, and Clara are three friends. Alice is twice as old as Bob. Clara is 1 year older than Bob. The sum of all their ages is 49 years. How old is Bob?
- ☐ A. 8 ☐ C. 12
- ☐ B. 10 ☐ D. 14



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6) The table below shows values of function f . What is $f(2)$?

x	0	1	2	3
$f(x)$	5	7	9	11

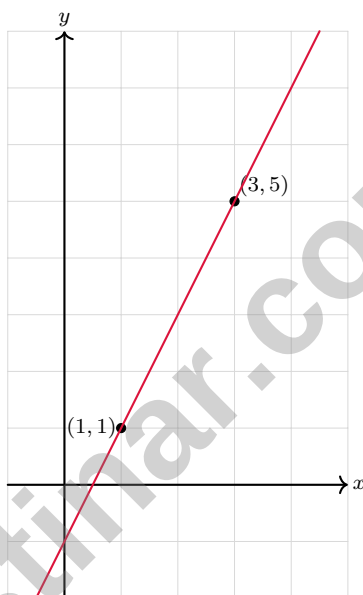
☐ A. 7

☐ C. 11

☐ B. 9

☐ D. 5

7) The graph below shows a line. Which equation represents this line?



☐ A. $y = 2x - 1$

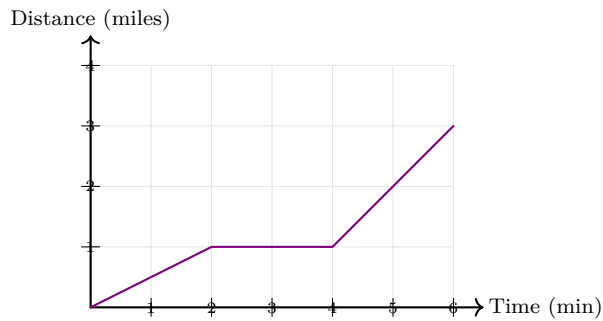
☐ C. $y = 2x + 1$

☐ B. $y = x$

☐ D. $y = \frac{1}{2}x + \frac{1}{2}$



8)



A runner travels 1 mile in 2 minutes, stops for 2 minutes, then runs 2 more miles in 2 minutes. What is the average speed over the whole journey?

☐ A. 0.75 miles/min

☐ C. 1 mile/min

☐ B. 0.5 miles/min

☐ D. 1.5 miles/min

9) Solve the system $\begin{cases} 2x + y = 5 \\ x - y = 4 \end{cases}$ by elimination.

10) Hexagon ABCDEF is congruent to hexagon GHIJKL. The perimeter of ABCDEF is 48 cm. What is the perimeter of GHIJKL?

☐ A. 24 cm

☐ C. 96 cm

☐ B. 48 cm

☐ D. Cannot be determined


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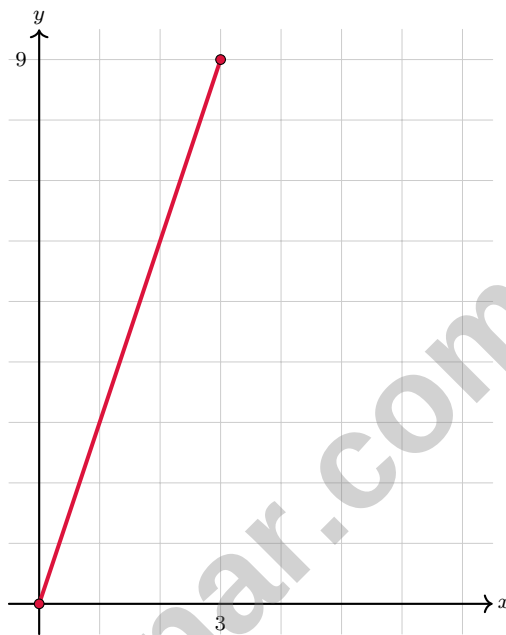
1) Solve for x : $\frac{x}{3} + 5 = 9$

☐ A. $x = 12$

☐ C. $x = 8$

☐ B. $x = 36$

☐ D. $x = 14$



2)

What is the slope?

☐ A. 2

☐ C. $\frac{1}{3}$

☐ B. $\frac{9}{2}$

☐ D. 3

3) For the relation to be a function, which y -value should replace the question mark?

$$\{(1, 4), (2, 8), (3, ?), (3, 12)\}$$

☐ A. 12

☐ C. This is impossible; the relation cannot be a function.

☐ B. 10

☐ D. 8



4) Which represents a LINEAR function?

☐ A. $y = 9x^2 - 4$

☐ B. $y = -12x - 1$

☐ C. $y = \sqrt{3x}$

☐ D. $y = \frac{6}{x}$

5) Simplify: $\sqrt{36} + \sqrt[3]{8}$

6) A store's revenue is $\$200 + \15 per item sold. What is the slope of revenue versus items sold?

☐ A. \$200

☐ B. \$30

☐ C. \$215

☐ D. \$15

7) A gym offers two membership plans. Plan A costs \$50 upfront plus \$10 per month. Plan B costs \$20 per month with no upfront fee. After how many months do the total costs equal?

☐ A. 3 months

☐ B. 4 months

☐ C. 5 months

☐ D. 6 months

8) If $g(x) = x + 7$, what is $g(2)$?

☐ A. 5

☐ B. 9

☐ C. 10

☐ D. 14



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1) What is $\sqrt{289}$?

☐ A. 16

☐ C. 18

☐ B. 19

☐ D. 17

2) Solve for x : $5x - 3 = 2x + 9$

☐ A. $x = 2$

☐ C. $x = 6$

☐ B. $x = 12$

☐ D. $x = 4$

3) A bank loan of \$10,000 at 5% simple interest is repaid in 5 equal annual installments. The total simple interest over the full term is \$2,500. How much principal and interest remains owed after making the first \$2,500 payment?

☐ A. \$8,000

☐ C. \$10,000

☐ B. \$8,500

☐ D. \$9,500

4) The mass of the Sun is approximately 2×10^{30} kg. How many times more massive is the Sun than Earth, which has mass 6×10^{24} kg?

5) Simplify $(p^{-2})^3$.

☐ A. p^1

☐ C. p^{-5}

☐ B. p^6

☐ D. p^{-6}



6) Two stores sell notebooks. Store A: 4 notebooks for \$8. Store B: 5 notebooks for \$12. Which has the lower unit price?

☐ A. Store A (\$2.40 each)

☐ C. Store A (\$2 each)

☐ B. Store B (\$2.40 each)

☐ D. Same price

7) Of the following, which set contains a repeated input with different outputs?

☐ A. $\{(2, 3), (2, 5), (3, 4)\}$

☐ C. $\{(4, 1), (5, 2), (6, 3)\}$

☐ B. $\{(1, 5), (2, 5), (3, 5)\}$

☐ D. $\{(7, 2), (8, 2), (9, 2)\}$

8) The graph below curves upward. Is it linear?



☐ A. Yes, because x and y are both positive

☐ C. Yes, the function is always increasing

☐ B. No, the curve is not a straight line

☐ D. No, only because it starts at the origin



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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 D is correct.** **(8.F.A.1)** Multiple inputs can map to the same output. Since each distinct input (a, b, c, d) appears exactly once, the relation is a function.
- 2) **Choice C is correct.** **(8.EE.B.5)** Unit price $k = \frac{9.60}{8} = 1.20$ dollars per song.
- 3) **Choice C is correct.** **(8.F.A.3)** Only $y = 6x - 9$ is in the form $y = mx + b$. Options A, B, and D involve exponents, reciprocals, or square roots, making them nonlinear.
- 4) **Choice D is correct.** **(8.EE.B.5)** An undefined slope occurs when $\Delta x = 0$, meaning the line is vertical. Dividing by zero (run = 0) is undefined.
- 5) **Choice C is correct.** **(8.EE.C.8c)** Let b = Bob's age. Alice is $2b$ and Clara is $b + 1$. The sum is $b + 2b + (b + 1) = 49$, so $4b + 1 = 49$. Thus $4b = 48$ and $b = 12$.
- 6) **Choice B is correct.** **(8.F.A.1)** Locate $x = 2$ in the table; the corresponding $f(x)$ value is 9.
- 7) **Choice A is correct.** **(8.F.B.4)** Slope: $m = \frac{5-1}{3-1} = \frac{4}{2} = 2$. Using point $(1, 1)$: $1 = 2(1) + b \Rightarrow b = -1$. Equation: $y = 2x - 1$.
- 8) **Choice B is correct.** **(8.F.B.5)** Total distance = 3 miles. Total time = 6 minutes. Average speed = $3 \div 6 = 0.5$ miles/min. The flat segment adds time but no distance.
- 9) **The correct answer is $(3, -1)$.** **(8.EE.C.8a)** Add the equations: $(2x + y) + (x - y) = 5 + 4$, so $3x = 9$, giving $x = 3$. Substitute: $3 - y = 4$, so $y = -1$.
- 10) **Choice B is correct.** **(8.G.A.2)** Congruent figures have equal perimeters. Since ABCDEF is congruent to GHIJKL, and the perimeter of ABCDEF is 48 cm, the perimeter of GHIJKL is also 48 cm.
- 11) **Choice A is correct.** **(8.G.A.3)** The rule for 270° counterclockwise rotation is $(x, y) \rightarrow (y, -x)$. So $(4, -3) \rightarrow (-3, -4)$.
- 12) **Choice B is correct.** **(8.G.A.5)** Sum of angles: $y + 2y + 3y = 180$, so $6y = 180$ and $y = 30^\circ$.
- 13) **Choice A is correct.** **(8.G.B.6, 8.G.B.7)** From $(\sqrt{2})^2 + (\sqrt{6})^2 = c^2$, we get $2 + 6 = 8$, so $c = \sqrt{8} = \sqrt{4 \cdot 2} = 2\sqrt{2}$.
- 14) **Choice A is correct.** **(8.G.B.8)** The hypotenuse (15) is the longest side. The correct equation is $c^2 = a^2 + b^2$, which gives $15^2 = 9^2 + b^2$.
- 15) **Choice C is correct.** **(8.G.B.7)** Let the angle be x . Its supplement is $180 - x$. So $x = (180 - x) + 8 \Rightarrow x = 188 - x \Rightarrow 2x = 188 \Rightarrow x = 94^\circ$.
- 16) **Choice C is correct.** **(8.G.C.9)** If height triples, volume triples (linear relationship with h in $V = \frac{1}{3}Bh$). New volume: $3 \times 240 = 720 \text{ ft}^3$.
- 17) **Choice C is correct.** **(8.G.B.7)** Parallelogram = $10 \times 6 = 60 \text{ m}^2$. Each triangle = $\frac{1}{2} \times 10 \times 2 = 10 \text{ m}^2$. Two triangles = 20 m^2 . Total = $60 + 20 = 80 \text{ m}^2$.
- 18) **The correct answer is B,D.** **(8.EE.C.7)** A: $5x + 2 = 5x - 3 \Rightarrow 2 = -3$ (no solution). B: $2x + 4 = x + 8 \Rightarrow x = 4$ (one solution). C: $3x - 5 = 3x - 5$ (identity, infinitely many). D: $4x + 1 = 2x + 9 \Rightarrow 2x = 8 \Rightarrow x = 4$ (one solution). E: $x = x$ (identity, infinitely many). Correct answers: B and D.
- 19) **The correct answer is 20.** **(8.EE.C.7)** Compute $9(2)^2 - 16 = 36 - 16 = 20$.
- 20) **Choice A is correct.** **(8.G.A.5)** For a triangle ($n = 3$): $(3 - 2) \times 180 = 1 \times 180 = 180^\circ$.
- 21) **Choice B is correct.** **(8.SP.A.1)** The point at (2500, 45) lies far from the main cluster of data, making it an outlier. The other points are grouped in a much lower mpg range, so this one point stands apart.
- 22) **Choice B is correct.** **(8.SP.A.4)** Among high-income households (total 60), those without internet = 5. Relative frequency = $\frac{5}{60} \approx 0.083$.
- 23) **The correct answer is 25.** **(8.F.A.2)** $S_X(w) = 10w$, $S_Y(w) = 50 + 8w$. Equal when $10w = 50 + 8w \Rightarrow w = 25$.
- 24) **Choice B is correct.** **(8.G.B.8)** Absolute deviations: $|20 - 27.5| = 7.5$, $|25 - 27.5| = 2.5$, $|30 - 27.5| = 2.5$, $|35 - 27.5| = 7.5$. Sum = 20. MAD = $20/4 = 5$.
- 25) **Choice A is correct.** **(8.SP.A.2)** $y = -1.5(4) + 20 = -6 + 20 = 14$.
- 26) **Choice B is correct.** **(8.G.A.4)** Perimeter scales linearly with the scale factor. $15 \times \frac{1}{2} = 7.5$ inches. A scale factor less than 1 creates a reduction.



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Hi, Persistent Problem Solver!

◇ Some Grade 8 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 8 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 8 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

Practice Today. Succeed Tomorrow!

Give your child the confidence and skills they need with **5 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 |
| ✓ Measurement & Data | ✓ And More! |

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