

3

Nevada

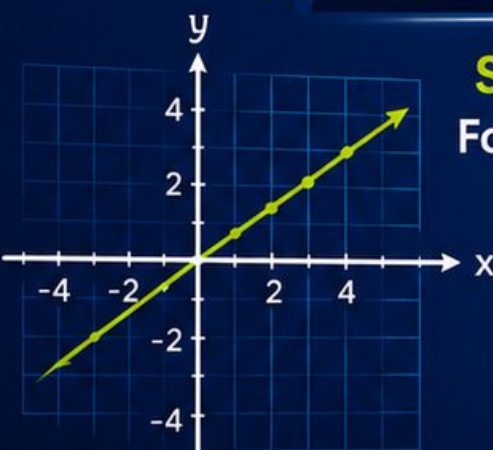
Smarter Balanced

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$V = s^3$$



$$y = mx + b$$
$$2x + 5 = 13$$
$$x = 4$$



3

**PRINTED
TESTS**



2

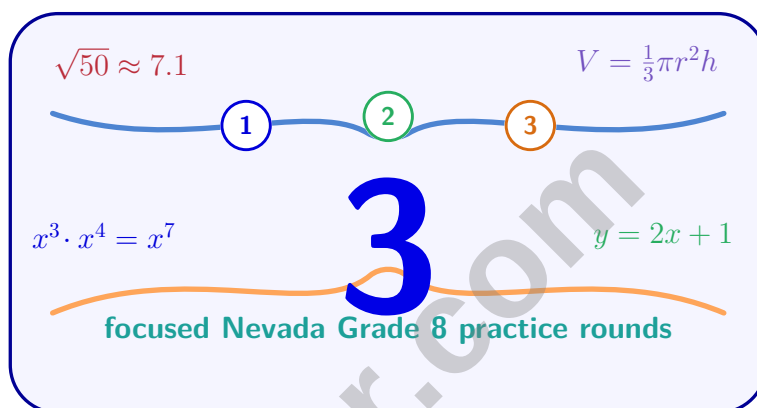
**ONLINE
TESTS**



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

3 Nevada Smarter Balanced Grade 8 Math Practice Tests

Focused Grade 8 Smarter Balanced Practice with Clear Explanations



Three 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!

Three focused rounds for sharper Smarter Balanced math thinking

This book gives you three 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 three-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?

Three Smarter Balanced tests, 120 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Test 3	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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& answers

Table of Contents



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1) A bag contains 6 cards labeled 1, 2, 3, 4, 5, 6. If two cards are drawn with replacement, how many total outcomes are possible?

☐ A. 12☐ C. 36☐ B. 30☐ D. 42

2) A cylindrical grain silo has a diameter of 10 feet and a height of 20 feet. The curved exterior wall must be painted. If paint costs \$2 per square foot, what is the total cost of paint needed? (Use $\pi \approx 3.14$.)

☐ A. \$314☐ C. \$1,256☐ B. \$628☐ D. \$1,570

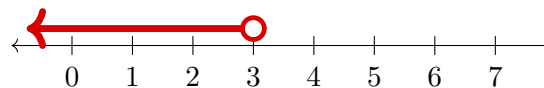
3) A figure is rotated 45° clockwise about the origin. Which of the following best describes what happens to a side parallel to the x -axis?

☐ A. It remains parallel to the x -axis☐ D. It becomes perpendicular to the☐ B. It becomes parallel to the y -axis y -axis☐ C. It tilts at a 45° angle below the horizontal

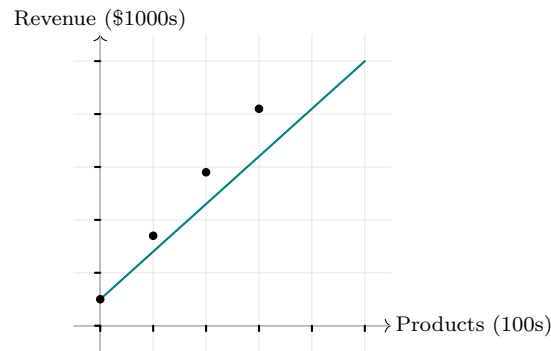
4) What is the slope of the line $y = -2x + 5$?

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

5) Solve: $x + 7 < 10$. Which number line shows the solution?

☐ A. $x < 3$ ☐ C. $x \leq 3$ ☐ B. $x > 3$ ☐ D. $x \geq 3$ 

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6)

A company's revenue model is $R = 12x + 500$, where R is revenue and x is the number of products sold. If revenue is \$8,900, how many products were sold?

☐ A. 525☐ C. 675☐ B. 700☐ D. 725

7) A student writes: $\frac{x^8}{x^2} = x^4$. What mistake did the student make?

☐ A. Added the exponents instead of subtracting.☐ C. Divided the exponents instead of subtracting.☐ B. Multiplied the exponents instead of subtracting.☐ D. The student is correct.

8) Simplify $\sqrt{16} \times \sqrt{25}$.

☐ A. $\sqrt{41}$ ☐ C. $\sqrt{200}$ ☐ B. 40☐ D. 20

9) Consider the equation $6x - 4 = 2(3x - 2)$. How many solutions does this have?

☐ A. One solution☐ C. Infinitely many solutions☐ B. No solution☐ D. Two solutions

10) Solve by substitution:
$$\begin{cases} x = 4 - y \\ x + 3y = 8 \end{cases}$$

☐ A. (0, 4)

☐ C. (2, 2)

☐ B. (1, 3)

☐ D. (3, 1)

11) Explain why 10^5 is 100 times greater than 10^3 . Use exponents in your reasoning.

12) The area model represents $(x + 5)^2$:

	x	5
x	x^2	$5x$
5	$5x$	25

What is the sum of all areas?

☐ A. $x^2 + 10x + 25$

☐ C. $x^2 + 5x + 5$

☐ B. $x^2 + 25$

☐ D. $2x^2 + 10x$

13) Convert $0.\overline{3}$ to a fraction.



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- 1) A slower cyclist riding 12 mph has a 9-mile head start. A faster cyclist riding 15 mph starts from the same point and rides in the same direction. How long will it take the faster cyclist to catch up?

- ☐ A. 2 hours ☐ C. 3 hours
☐ B. 2.5 hours ☐ D. 4 hours

$0.7\overline{89}$

Non-repeating digits: 1

Repeating-block digits: 2

Denominator form: $\frac{?}{990}$

2)

What goes in the numerator when converting $0.7\overline{89}$?

- ☐ A. $7 + 89 = 96$ ☐ C. 89
☐ B. 789 ☐ D. $789 - 7 = 782$

- 3) A reasonable decimal approximation for $\sqrt{21}$ is closest to?

- ☐ A. 4 ☐ C. 5
☐ B. 5.5 ☐ D. 4.5

- 4) Which is the best estimate of $\sqrt{30}$?

- ☐ A. 4.5 ☐ C. 6.0
☐ B. 15.0 ☐ D. 5.5



5) Express 0.0072 in scientific notation.

☐ A. 0.72×10^{-2}

☐ C. 7.2×10^{-4}

☐ B. 7.2×10^3

☐ D. 7.2×10^{-3}

6) A cubic metal box has an edge length of 6 cm. What is the surface area that needs to be painted?

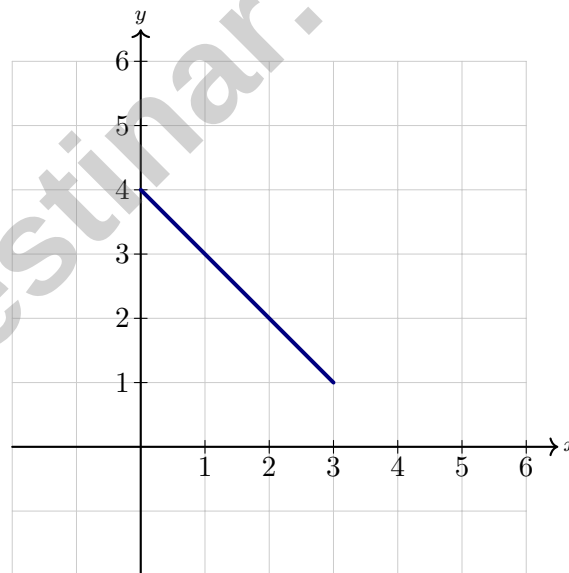
☐ A. 36 cm^2

☐ C. 144 cm^2

☐ B. 72 cm^2

☐ D. 216 cm^2

7) A figure in Quadrant I is reflected across the line $y = -x$. Which quadrant will the image be in?

☐ A. Quadrant I☐ C. Quadrant IV☐ B. Quadrant II☐ D. Quadrant III

8)

Which ordered pair is a solution to the equation of the line shown?

☐ A. (1, 3)

☐ C. (4, 1)

☐ B. (2, 1)

☐ D. (3, 2)



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1) $(4.5 \times 10^{-6}) \times (2 \times 10^{-4}) = ?$

☐ A. 9×10^{-2}

☐ C. 9×10^{-10}

☐ B. 6.5×10^{-10}

☐ D. 9×10^{24}

2) A trend line has equation $y = 2.5x - 5$. What would be the predicted value of y when $x = 10$?

☐ A. 30

☐ C. 20

☐ B. 25

☐ D. 15

3) Triangle X is similar to Triangle Y . In Triangle X , one angle measures 60° . What is the measure of the corresponding angle in Triangle Y ?

☐ A. 30°

☐ C. 120°

☐ B. 60°

☐ D. Cannot be determined

4) If r is a nonzero rational number and i is an irrational number, which expression is definitely rational?

☐ A. $r + i$

☐ C. $\frac{r}{r}$ (where $r \neq 0$)

☐ B. $r \times i$

☐ D. $i - r$

5) Which table shows a LINEAR function?

x	2	4	6	8
y	5	11	17	23

☐ A. Yes; the y -values increase by 6 each step

☐ C. No; y is greater than x

☐ D. No; the equation is $y = 3x - 1$

☐ B. No; x increases by 2 each time



6) Convert $0.4\overline{18}$ to a fraction in simplest form.

☐ A. $\frac{4}{18}$
☐ B. $\frac{418}{1000}$

☐ C. $\frac{418}{999}$
☐ D. $\frac{414}{990} = \frac{23}{55}$

7) A table shows:

x	0	3	6
y	5	2	-1

What is the rate of change (slope)?

8) Which is larger: $\sqrt{15}$ or $\sqrt{14}$?

- ☐ A. They are equal
☐ B. Cannot compare

- ☐ C. $\sqrt{14}$
☐ D. $\sqrt{15}$

9) Which is the best estimate of $\sqrt{48}$?

- ☐ A. 6.5
☐ B. 7.0

- ☐ C. 6.9
☐ D. 8.2

10) Convert 42,000 to scientific notation.

- ☐ A. 4.2×10^3
☐ B. 4.2×10^5

- ☐ C. 42×10^2
☐ D. 4.2×10^4



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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 C is correct.** (8.G.B.7) With replacement, first draw has 6 choices, second draw has 6 choices. Total: $6 \times 6 = 36$ outcomes.
- 2) **Choice C is correct.** (8.G.C.9) Radius $r = 5$ feet. Lateral (curved) surface area $= 2\pi rh = 2(3.14)(5)(20) = 628$ sq. ft. Cost $= 628 \times \$2 = \$1,256$.
- 3) **Choice C is correct.** (8.G.A.1) A 45° clockwise rotation tilts all sides by 45° downward. A horizontal side becomes a line sloping downward at 45° (parallel to $y = -x$ region).
- 4) **Choice A is correct.** (8.EE.B.6) In slope-intercept form $y = mx + b$, the coefficient m is the slope. Here $m = -2$.
- 5) **Choice A is correct.** (8.EE.C.8b) Subtract 7: $x < 3$. The open circle and left ray match this solution.
- 6) **Choice B is correct.** (8.SP.A.3) Set $R = 8900$: $8900 = 12x + 500 \Rightarrow 12x = 8400 \Rightarrow x = 700$.
- 7) **Choice C is correct.** (8.EE.A.1) Correct answer: $\frac{x^8}{x^2} = x^{8-2} = x^6$, not x^4 . The student likely divided: $8 \div 2 = 4$.
- 8) **Choice D is correct.** (8.EE.A.2) $\sqrt{16} = 4$ and $\sqrt{25} = 5$, so $4 \times 5 = 20$. Alternatively, $\sqrt{16} \times \sqrt{25} = \sqrt{16 \times 25} = \sqrt{400} = 20$.
- 9) **Choice C is correct.** (8.EE.C.7) Expand the right side: $6x - 4 = 6x - 4$. Both sides are identical, so every value of x is a solution.
- 10) **Choice C is correct.** (8.EE.C.8a) Substitute $x = 4 - y$ into $x + 3y = 8$: $(4 - y) + 3y = 8$, so $4 + 2y = 8$, giving $y = 2$. Then $x = 4 - 2 = 2$. Solution: $(2, 2)$.
- 11) **The correct answer is 100.** (8.EE.A.3) When dividing powers with the same base, subtract the exponents. $10^{5-3} = 10^2$, and $10^2 = 100$, so 10^5 is 100 times larger than 10^3 .
- 12) **Choice A is correct.** (8.EE.C.7) Sum: $x^2 + 5x + 5x + 25 = x^2 + 10x + 25 = (x + 5)^2$.
- 13) **The correct answer is $\frac{1}{3}$.** (8.NS.A.1) Let $x = 0.\bar{3}$. Then $10x = 3.\bar{3}$, so $9x = 3$ and $x = \frac{1}{3}$.
- 14) **Choice B is correct.** (8.EE.C.8b) DASHED line means strict inequality ($<$ or $>$). Shading BELOW means $y <$. Combined: $y < x - 2$.
- 15) **Choice A is correct.** (8.F.A.2) Slope of r : $(7 - 3)/(3 - 1) = 4/2 = 2$. Slope of s : 1. Since $2 > 1$, r increases faster.
- 16) **Choice A is correct.** (8.F.B.4) Using $y = mx + b$ with $m = 3$ and point $(1, 7)$: $7 = 3(1) + b \Rightarrow b = 4$. Equation: $y = 3x + 4$.
- 17) **Choice A is correct.** (8.F.B.5) Steep rise early (fast growth), then level off (approaching maximum) matches plant growth. B is linear, C is linear decrease, D accelerates (not levels off).
- 18) **Choice C is correct.** (8.G.A.2) The perimeter of Rectangle 1 is $2(12) + 2(5) = 24 + 10 = 34$ inches. Since Rectangle 2 is congruent, it has the same perimeter: 34 inches.
- 19) **Choice B is correct.** (8.G.A.3) The rule for 90° counterclockwise rotation is $(x, y) \rightarrow (-y, x)$. So $(6, 8) \rightarrow (-8, 6)$.
- 20) **Choice B is correct.** (8.G.A.5) The angles sum to 180° : $(n + 15) + (n + 20) + (2n + 25) = 180$. Thus $4n + 60 = 180$, so $4n = 120$ and $n = 30$.
- 21) **The correct answer is A, C.** (8.NS.A.1) Statement A is true because rational numbers are closed under addition. Statement C is true because any terminating decimal, such as $0.75 = \frac{3}{4}$, is rational. Statement B is false because two irrational numbers can multiply to a rational number, for example $\sqrt{2} \times \sqrt{8} = 4$. Statement D is false because integers are rational. Statement E is false because perfect squares have rational square roots, not irrational ones.
- 22) **Choice B is correct.** (8.G.B.6, 8.G.B.7) Verify: $121 + 3600 = 3721 = 61^2$. This is the 11-60-61 Pythagorean triple.
- 23) **Choice A is correct.** (8.G.B.8) $d = \sqrt{(5 - 2)^2 + (7 - 3)^2} = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$ units.
- 24) **Choice C is correct.** (8.G.C.9) Radius $r = 12$ cm. $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 1728 = 7234.56$ cm³.
- 25) **Choice A is correct.** (8.G.B.7) Co-interior angles are supplementary when a transversal cuts parallel lines. So $y = 180 - 136 = 44^\circ$.
- 26) **Choice B is correct.** (8.G.C.9) $B = 230^2 = 52900$ m². $V = \frac{1}{3} \times 52900 \times 147 \approx \frac{7776300}{3} \approx 2.6 \times 10^6$ m³.
- 27) **Choice A is correct.** (8.G.B.7) Large rectangle area $= 20 \times 8 = 160$ m². Small rectangle area $= 6 \times 3 = 18$ m². Remaining $= 160 - 18 = 142$ m².



Hi, Grade 8 Math Star!

◇ You finished this practice set with real effort. Grade 8 math asks you to connect ideas, explain your thinking, and stay steady through multi-step problems. ◇

★ **Remember this:** Every page you completed helped build stronger habits: reading carefully, choosing a method, showing work, and checking whether the answer makes sense. You practiced across 3 full Grade 8 practice tests, and that repeated effort matters. ★

What You Built

- **Focus:** You stayed with challenging questions.
- **Accuracy:** You learned to slow down when details matter.
- **Reasoning:** You practiced explaining why a method works.
- **Readiness:** You are more prepared than when you started.

Grade 8 test-day tip: Before test day, review the questions that made you pause. Those are the best teachers.

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

Jay Daie

Your Grade 8 Math Friend

PRACTICE TODAY, ACHIEVE TOMORROW!

GRADE
8

Give your child the edge they need with **3 full-length** Grade 8 Math practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, boosting confidence, and preparing for 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.



Build Skills & Boost Confidence

Strengthen understanding and feel prepared for test day.

COVERS ALL ESSENTIAL TOPICS

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



2 Extra Online Practice Tests Included!

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

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PRACTICE. PREPARE. SUCCEED.



Testinar

More Practice. More Confidence.
Better **Results**.