

8

Nevada

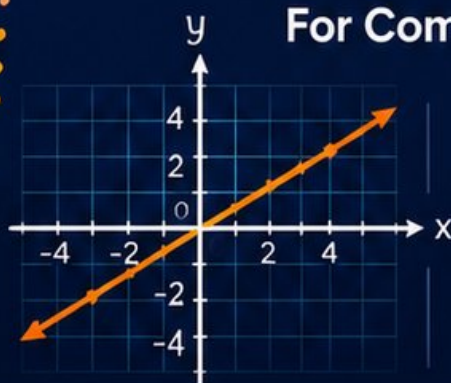
Smarter Balanced

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$

$$C = 2\pi r$$

$$V = \frac{1}{3}\pi r^2 h$$



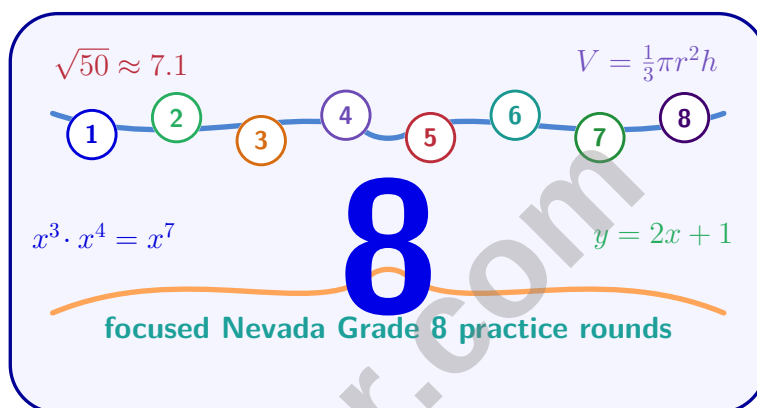
$$V = \frac{1}{3}b^2 h$$

**8** PRINTED TESTS**2** ONLINE TESTS

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

8 Nevada Smarter Balanced Grade 8 Math Practice Tests

Nevada Grade 8 Review for Functions, Geometry, and Statistics



Eight 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!

Eight focused rounds for sharper Smarter Balanced math thinking

This book gives you eight 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

An eight-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?

Eight Smarter Balanced tests, 320 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real and irrational numbers, integer exponents, scientific notation, equations, and careful reading.
Tests 4–6	Slope, systems of equations, functions, inequalities, transformations, congruence, and similarity.
Tests 7–8	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
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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- 1) A student calculates the surface area of a rectangular prism with dimensions 4 m $\times$ 3 m $\times$ 2 m as $SA = 4 \times 3 + 4 \times 2 + 3 \times 2 = 12 + 8 + 6 = 26 \text{ m}^2$. What is the student's error?

- ☐ A. Forgot to multiply by 2
☐ B. Calculated volume instead
☐ C. Used the wrong formula
☐ D. Added instead of multiplied all terms

2)

Value	2	4	6
-------	---	---	---

Find the MAD. (Mean = 4)

- ☐ A. $\frac{4}{3}$
☐ B. 2
☐ C. $\frac{8}{3}$
☐ D. 4
- 3) Two students sketch different trend lines through the same scatter plot. Student A's line has a gentler slope, while Student B's line has a steeper slope. What could explain this difference?

- ☐ A. One student made a calculation error
☐ B. The students used different data sets
☐ C. Only one line can ever be correct
☐ D. Sketching a trend line by eye allows for reasonable variation

- 4) A point is reflected across the line $y = -x$. The image is at $(2, -5)$. What is the pre-image?

- ☐ A. $(-5, 2)$
☐ B. $(-2, 5)$
☐ C. $(2, 5)$
☐ D. $(5, -2)$

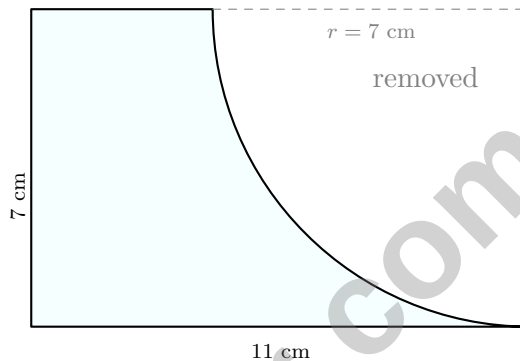


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- 5) A square pyramid has a base edge of 1.5 m and a height of 10 m. What is its volume?
(Use $1.5^2 = 2.25$.)

☐ A. 7.5 m^3 ☐ C. 22.5 m^3
☐ B. 11.25 m^3 ☐ D. 33.75 m^3

- 6) A composite figure is a rectangle (11 cm by 7 cm) with a quarter-circle ($radius = 7$ cm) removed from one corner. Find the remaining area. Use $\pi \approx 3.14$.



☐ A. 38.465 cm^2 ☐ C. 77 cm^2
☐ B. 38.535 cm^2 ☐ D. 115.465 cm^2

7)



5 red, 3 blue

A bag contains 5 red and 3 blue marbles. A marble is drawn, its color noted, replaced, then another marble is drawn. What is the probability both marbles are red?

☐ A. $\frac{10}{64}$ ☐ C. $\frac{10}{16}$
☐ B. $\frac{25}{64}$ ☐ D. $\frac{5}{8}$



8) How many ways can a teacher select and arrange 3 students from a class of 8 to sit in the front row?

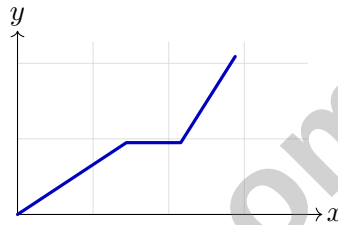
☐ A. $\binom{8}{3} = 56$

☐ C. $8^3 = 512$

☐ B. $8 \times 7 \times 6 = 336$

☐ D. $8! = 40,320$

9) Sketch or describe a graph showing: a person walks for 2 hours (increasing distance), rests for 1 hour (no change in distance), then runs for 1 hour (distance increases again, faster). What geometric shapes make up this graph?



10) Which product is rational?

☐ A. $\sqrt{6} \times \sqrt{10}$

☐ C. $\sqrt{7} \times \sqrt{11}$

☐ B. $\sqrt{3} \times \sqrt{5}$

☐ D. $\sqrt{2} \times \sqrt{2}$

11) Which equals $0.\overline{36}$?

☐ A. $\frac{36}{100} = \frac{9}{25}$

☐ C. $\frac{36}{90}$

☐ B. $\frac{6}{10}$

☐ D. $\frac{36}{99} = \frac{4}{11}$



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- 1) A cafe has 9 types of sandwiches and 4 types of drinks. How many different lunch combinations (one sandwich + one drink) can a customer order?

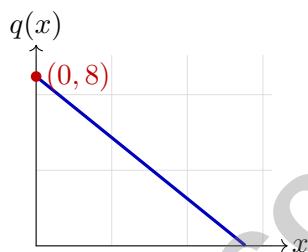
☐ A. $9 + 4 = 13$

☐ B. $9 - 4 = 5$

☐ C. $9 \times 4 = 36$

☐ D. $\frac{9}{4} = 2.25$

- 2) Two linear functions: $p(x) = -x + 10$ (verbal: “starts at 10, decreases by 1 each step”). Function q shown in graph through $(0, 8)$ with slope -1.5 . Which has more negative slope?



☐ A. Function p

☐ B. Function q

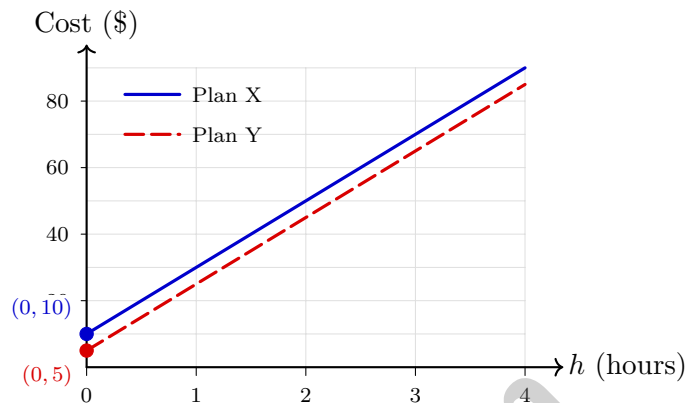
☐ C. Equal negative slopes

☐ D. Not comparable

- 3) A chemist combines a 25% salt solution with an 80% salt solution to make 100 mL of a 50% solution. How many mL of the 25% solution are used?



- 4) Plan X: $C_X = 20h + 10$. Plan Y: $C_Y = 20h + 5$. Both have the same hourly rate of \$20. Which plan is cheaper initially?



- ☐ A. Plan X is cheaper initially.
 ☐ D. Cannot be determined from the equations.
- ☐ B. Plan Y is cheaper initially.
- ☐ C. Both cost the same initially.
- 5) Evaluate $(x + 9)^2$ when $x = 1$.

- 6) Which graph feature indicates that an object momentarily stops during a distance-time journey?

- ☐ A. A vertical line segment
 ☐ C. A steep downward slope
- ☐ B. A horizontal line segment
 ☐ D. A negative y -intercept



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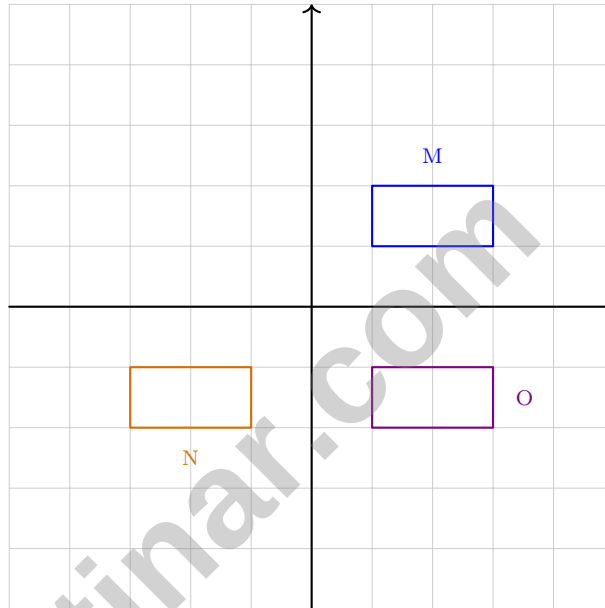
1) Solve:
$$\begin{cases} x = 2y + 1 \\ 3x - y = 8 \end{cases}$$

☐ A. (1, 0)

☐ C. (5, 2)

☐ B. (7, 3)

☐ D. (3, 1)



2)

If M is the original figure, which statement is true?

- | | |
|---|--|
| ☐ A. M to N is a translation; M to O is a reflection | ☐ C. M to N is a 180° rotation; M to O is a reflection across the x -axis |
| ☐ B. M to N is a reflection; M to O is a translation | ☐ D. Both N and O are obtained by rotations only |



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3) Solve for x : $2x + 8 = 20$

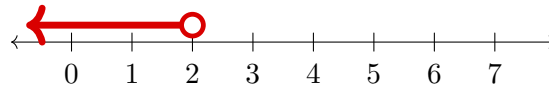
☐ A. $x = 6$

☐ C. $x = 28$

☐ B. $x = 14$

☐ D. $x = 4$

4) Which inequality has the solution graphed below?



☐ A. $x < 2$

☐ C. $x \leq 2$

☐ B. $x > 2$

☐ D. $x \geq 2$

5) Multiply: $(3x - 2)(x - 4)$

☐ A. $3x^2 - 14x + 8$

☐ C. $3x^2 - 8$

☐ B. $3x^2 - 12x - 2x - 8$

☐ D. $3x^2 + 12x + 8$

6) Test the point $(0, 0)$ in the inequality $y > x - 3$. Is it in the solution region?

☐ A. Yes, because $0 > -3$

☐ C. No, because $0 < -3$

☐ B. Yes, because $0 = 0$

☐ D. No, because $0 = -3$

7) Video streaming Plan A: \$2.99 base, \$0.50 per movie. Plan B through $(0, 1)$ and $(10, 6)$ on a cost-movie plane. Which plan costs more at 20 movies?

☐ A. Plan A

☐ C. Both equal

☐ B. Plan B

☐ D. Cannot be determined



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 A is correct.** (8.G.C.9) The student calculated the sum of the three different face areas but forgot to double each (since there are two of each face). The correct calculation is $SA = 2(12 + 8 + 6) = 52 \text{ m}^2$.
- 2) **Choice A is correct.** (8.G.B.8) Absolute deviations: $|2 - 4| = 2$, $|4 - 4| = 0$, $|6 - 4| = 2$. Sum = 4. $MAD = 4/3 \approx 1.33$.
- 3) **Choice D is correct.** (8.SP.A.2) When sketching trend lines by hand, slight differences in slope are natural and acceptable, as long as both lines reasonably balance data on both sides and follow the overall trend.
- 4) **Choice D is correct.** (8.G.A.3) Reflection across $y = -x$ maps $(x, y) \rightarrow (-y, -x)$. Reversing: $(2, -5) \rightarrow (-(-5), -2) = (5, -2)$.
- 5) **Choice A is correct.** (8.G.C.9) $V = \frac{1}{3} \times 2.25 \times 10 = \frac{22.5}{3} = 7.5 \text{ m}^3$.
- 6) **Choice B is correct.** (8.G.B.7) Rectangle area is $11 \times 7 = 77 \text{ cm}^2$. The removed quarter-circle area is $\frac{1}{4} \times 3.14 \times 7^2 = 38.465 \text{ cm}^2$. Remaining area is $77 - 38.465 = 38.535 \text{ cm}^2$.
- 7) **Choice B is correct.** (8.G.B.7) With replacement: $P(\text{red and red}) = \frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$.
- 8) **Choice B is correct.** (8.EE.C.7b) Seat 1: 8 choices. Seat 2: 7 remaining. Seat 3: 6 remaining. Using permutation notation: $\frac{8!}{5!} = 8 \times 7 \times 6 = 336$.
- 9) **The correct answer is 3 line segments.** (8.F.B.5) The first 2 hours show an upward-sloping line. The next hour is a horizontal line (zero slope). The final hour is an upward-sloping line with a steeper slope than the first segment because the person is running faster. Together, these form a piecewise linear function.
- 10) **Choice D is correct.** (8.NS.A.1) $\sqrt{2} \times \sqrt{2} = 2$, which is rational. The other products simplify to square roots of non-perfect squares: $\sqrt{3} \times \sqrt{5} = \sqrt{15}$, $\sqrt{7} \times \sqrt{11} = \sqrt{77}$, and $\sqrt{6} \times \sqrt{10} = \sqrt{60} = 2\sqrt{15}$. Those are irrational.
- 11) **Choice D is correct.** (8.NS.A.1) Let $x = 0.36$. Then $100x = 36.36$. Subtracting: $99x = 36$, so $x = \frac{36}{99} = \frac{4}{11}$.
- 12) **Choice C is correct.** (8.NS.A.2) $\pi \approx 3.14159 \dots$, commonly estimated as 3.14 or 3.2 for Grade 8 work. Distractors: A (underestimate), B (rounds down), D (rounds up).
- 13) **Choice D is correct.** (8.EE.A.3) Divide: $\frac{1.5 \times 10^{12}}{1.5 \times 10^{10}} = 1 \times 10^2 = 100$ times larger.
- 14) **Choice D is correct.** (8.EE.B.6) A horizontal line has slope 0 and is represented by $y = c$ where c is constant. Here, $c = 5$.
- 15) **Choice D is correct.** (8.NS.A.2) From the table, $3^2 = 9$ and $4^2 = 16$. Since $9 < 11 < 16$, we have $3 < \sqrt{11} < 4$.
- 16) **Choice D is correct.** (8.EE.A.1) $(-3)^{-2} = \frac{1}{(-3)^2} = \frac{1}{9}$ (even exponent makes it positive).
- 17) **The correct answer is 132.** (8.G.B.7) Let the angle be x . Its supplement is $180 - x$. Since $x = 3(180 - x) - 12$, we get $x = 540 - 3x - 12$, so $4x = 528$ and $x = 132$.
- 18) **Choice C is correct.** (8.EE.A.2) $7^2 = 49$ and $8^2 = 64$, so $\sqrt{50}$ is a little more than 7. Since $\sqrt{50} \approx 7.07$, it is closest to 7.1.
- 19) **Choice A is correct.** (8.EE.C.7) Subtract $2x$ and 7: $2x = 12$. Divide by 2: $x = 6$.
- 20) **The correct answer is A,D.** (8.F.B.4) Option A is correct because the slope of d_1 is 3 km/h. Option D is correct because $3 > 2$, so Hiker 1 travels faster. Hiker 2 starts 5 km from the trailhead, Hiker 1 starts 2 km from the trailhead, and the hikers are at the same distance when $t = 3$, not $t = 2$.
- 21) **Choice C is correct.** (8.EE.C.8b) Solving $2x - 3 < 5$ gives $2x < 8$, so $x < 4$. Of the listed choices, only $x = 3$ satisfies the inequality.
- 22) **Choice C is correct.** (8.G.B.7) Interest: $I = 5000 \times 0.05 \times 4 = \$1,000$. Total: $5000 + 1000 = \$6,000$.
- 23) **Choice C is correct.** (8.EE.A.4) Multiply coefficients: $1.5 \times 2.4 = 3.6$. Add exponents: $10^{-3+(-2)} = 10^{-5}$. Result: 3.6×10^{-5} .
- 24) **Choice D is correct.** (8.EE.B.5) A proportional equation has the form $y = kx$ (passes through origin, no constant term). Only $y = -5x$ fits this form.
- 25) **Choice A is correct.** (8.EE.C.8a) Parallel lines have the same slope but different y -intercepts. Both equations $y = 2x + 1$ and $y = 2x - 3$ have slope 2 but different intercepts (1 and -3). Option D is the same line (infinitely many solutions).



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Hi, Math Communicator!

◇ Grade 8 math is not only about getting a number. It is about explaining relationships and making your reasoning visible. ◇

★ **Remember this:** When you show steps, label diagrams, and write clear answers, you are joining the conversation that math is trying to have. You practiced across 8 full Grade 8 practice tests, and that repeated effort matters. ★

Communication Skills

- **Use Words:** Explain what the answer means.
- **Use Symbols:** Keep equations accurate.
- **Use Diagrams:** Show relationships visually.
- **Use Units:** Connect math to context.

Grade 8 test-day tip: For open-ended questions, answer in a complete thought: value, unit, and reason.

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

Jay Daie

Your Math Communication Coach

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror 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.



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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More Practice. More Confidence.
Better Results.