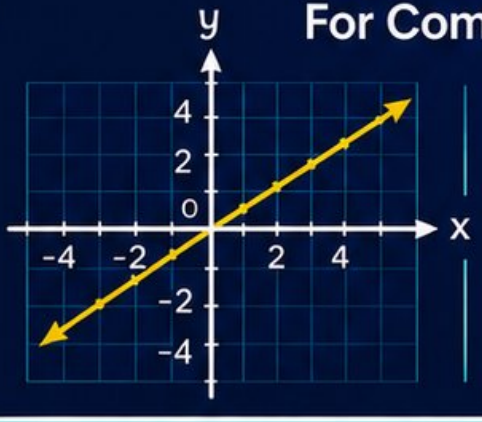
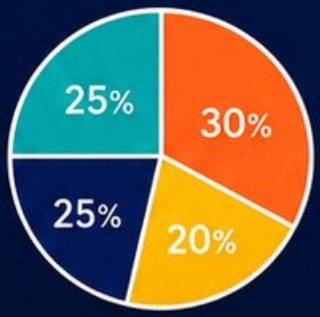
4 Nevada Smarter Balanced

4 GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



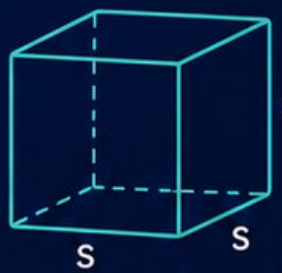


$y = mx + b$

$2x - 3y = 6$

$\sqrt{x^2 + y^2}$

$A = bh$



$V = s^3$

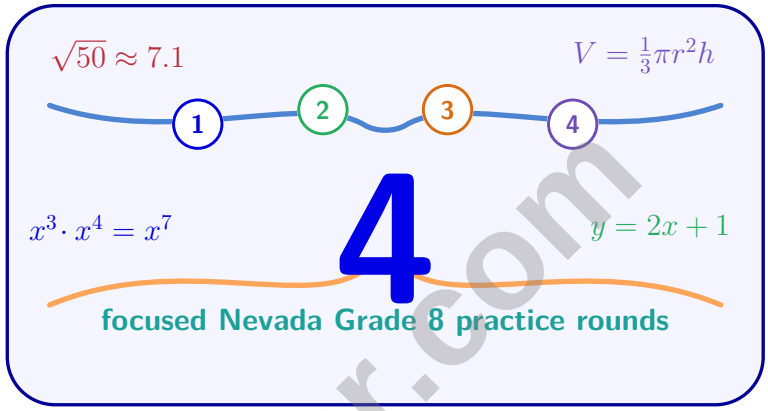
4 PRINTED TESTS

2 ONLINE TESTS

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

4 Nevada Smarter Balanced Grade 8 Math Practice Tests

Four Smarter Balanced Tests for Standards Practice and Smarter Review



Four 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!

Four focused rounds for sharper Smarter Balanced math thinking

This book gives you four 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.

How to Use This Book

A four-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?

Four Smarter Balanced tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–4	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.

Table of Contents

1) A cone has radius 6 cm and height 9 cm. A sphere has radius 5 cm. Which solid has the greater volume? (Use $\pi \approx 3.14$.)

☐ A. Cone ($V \approx 339.12$ cm^3)
☐ B. Sphere ($V \approx 523.33$ cm^3)
☐ C. Both have equal volume
☐ D. Cannot be determined

2) The table shows a function. Find $f(0)$.

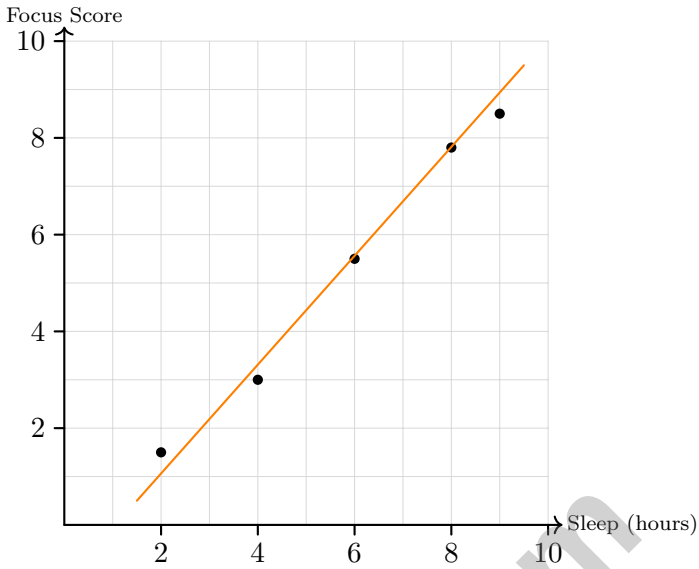
x	-1	0	1	2
$f(x)$	2	3	4	5

☐ A. 3
☐ B. 2
☐ C. 4
☐ D. 0

3) Which graph does NOT represent a function?

☐ A. A line passing through $(0, 2)$ and $(2, 6)$.
☐ B. A horizontal line at $y = 5$.
☐ C. A curve shaped like a sideways parabola opening right.
☐ D. A diagonal line with negative slope.

4)



Based on the trend line, if a student sleeps 7 hours, what is the predicted focus score?

☐ A. Approximately 5
☐ B. Approximately 6
☐ C. Approximately 7
☐ D. Approximately 8

5) A trapezoid has a top base of 5 cm, a bottom base of 9 cm, and two equal legs. If the perimeter is 30 cm, what is the length of each leg?

☐ A. 6 cm
☐ B. 7 cm
☐ C. 8 cm
☐ D. 9 cm

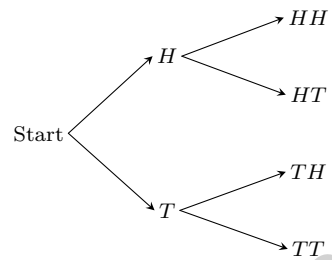
6) Rectangle X is similar to Rectangle Y. Rectangle X has perimeter 20 m. Rectangle Y has perimeter 50 m. What is the ratio of the side lengths (X to Y)?

☐ A. 2 : 5
☐ B. 4 : 25
☐ C. 5 : 2
☐ D. 25 : 4

7) If x is a whole number and $\sqrt{x}$ is rational, then x must be:

☐ A. Irrational
☐ B. Odd
☐ C. A perfect square
☐ D. Greater than 10

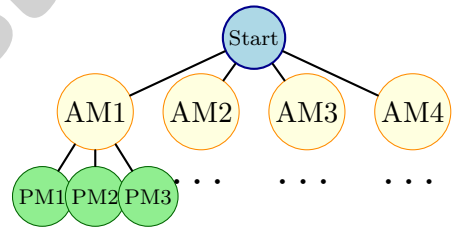
8)



A tree diagram shows all possible outcomes when a coin is flipped twice. According to the diagram, how many total outcomes are there?

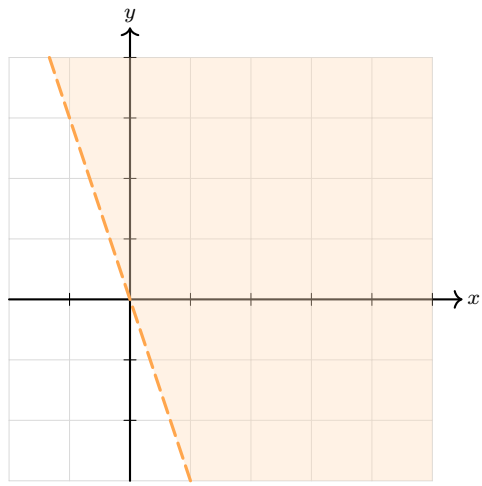
☐ A. 2
☐ B. 6
☐ C. 4
☐ D. 3

9) A student chooses a morning task (4 options) and an afternoon task (3 options). A partial tree diagram is drawn. How many final outcome branches are there?



☐ A. $4 + 3 = 7$
☐ B. $4 \times 3 = 12$
☐ C. $4^3 = 64$
☐ D. $3^4 = 81$

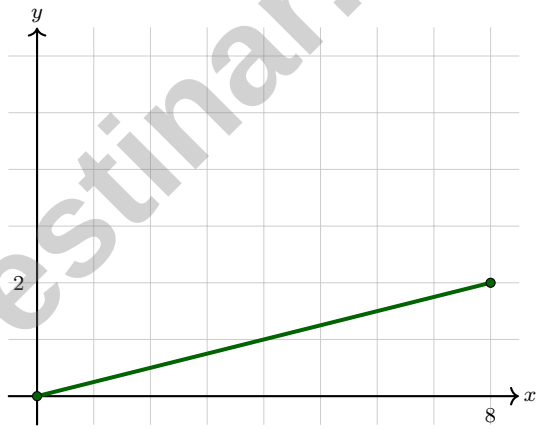
1)



What inequality matches this graph?

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

2)



The constant of proportionality is:

☐ A. 4
☐ B. 2
☐ C. 0.25
☐ D. 8

3) A linear equation shows the relationship between time spent studying (x, hours) and test score (y, points): $y = 5x + 60$. What is the slope, and what does it represent?

- ☐ A. Slope is 5; for each additional hour of study, the test score increases by 5 points
- ☐ B. Slope is 60; the starting test score is 60 points
- ☐ C. Slope is $5x$; score changes with study time
- ☐ D. Slope is 60; for each additional hour, the score increases by 60 points

4) If $f(x) = \begin{cases} 2x & \text{if } x < 2 \\ 5 & \text{if } x \geq 2 \end{cases}$, what is $f(3)$?

- ☐ A. 6
- ☐ B. 3
- ☐ C. 5
- ☐ D. 8

5) The table below shows preferences for sports among 100 students.

	Football	Basketball	Total
Boys	35	20	55
Girls	15	30	45
Total	50	50	100

How many boys prefer basketball?

- ☐ A. 15
- ☐ B. 20
- ☐ C. 35
- ☐ D. 50

6)

Test Scores	88	92	90	86	94

Five students scored as shown. The mean is 90. Calculate the MAD.

- ☐ A. 2
- ☐ B. 3
- ☐ C. 2.4
- ☐ D. 4

1) A bank offers 6% simple interest. If you deposit \$5,000 for 18 months, how much interest will you earn?

☐ A. \$300
☐ B. \$900
☐ C. \$600
☐ D. \$450

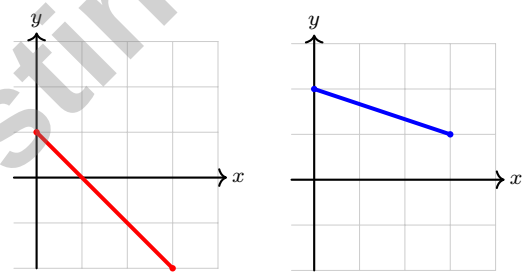
2) The relationship between inches (x) and centimeters (y) is $y = 2.54x$. How many centimeters equal 10 inches?

☐ A. 20.4 cm
☐ B. 23.4 cm
☐ C. 25.4 cm
☐ D. 26.4 cm

3) A recipe uses 2 cups of flour for every 3 eggs. If e is the number of eggs, which expression gives the amount of flour needed?

☐ A. $f = \frac{2e}{3}$
☐ B. $f = \frac{3e}{2}$
☐ C. $f = 3e + 2$
☐ D. $f = 2e - 3$

4) Which graph best represents a line with slope $-\frac{1}{3}$?



☐ A. Red line (left)
☐ B. Neither has slope $-\frac{1}{3}$
☐ C. Both have slope $-\frac{1}{3}$
☐ D. Blue line (right)

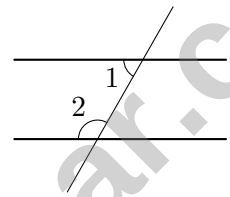
5) A chemist mixes a 30% acid solution with an 80% acid solution to make 100 mL of a 50% solution. Let x = volume of 30% solution (mL). Which equation represents the acid content?

☐ A. $0.3x + 0.8(100 - x) = 0.5(100)$
☐ B. $0.3(100 - x) + 0.8x = 50$
☐ C. $30x + 80x = 50 \cdot 100$
☐ D. $0.3x + 0.8x = 50$

6) If $f(x) = |x - 2|$, what is $f(5)$?

☐ A. 3
☐ B. -3
☐ C. 7
☐ D. -7

7) Which angle pair is formed when a transversal crosses two parallel lines and both angles are on the same side of the transversal and between the lines?



☐ A. Alternate interior angles
☐ B. Corresponding angles
☐ C. Co-interior angles
☐ D. Alternate exterior angles

8) A television screen is advertised as having a diagonal of 50 inches. If the width is 40 inches, what is the height?

☐ A. 10 inches
☐ B. 30 inches
☐ C. 45 inches
☐ D. 90 inches

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.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice B is correct.** 8.G.C.9 Cone: $V = \frac{1}{3} \times 3.14 \times 36 \times 9 = 339.12$ cm^3. Sphere: $V = \frac{4}{3} \times 3.14 \times 125 = 523.33$ cm^3.
2) **Choice A is correct.** 8.F.A.1 Look up $x = 0$ in the table; the corresponding $f(x)$ value is 3.
3) **Choice C is correct.** 8.F.A.1 A sideways parabola (opening right or left) fails the vertical line test because some vertical lines intersect it twice. The other options all pass the vertical line test.
4) **Choice C is correct.** 8.SP.A.2 Reading from the trend line at $x = 7$, the corresponding y-value is just under 7, so the best estimate is approximately 7.
5) **Choice C is correct.** 8.EE.C.8c Perimeter $= 5 + 9 + 2\ell = 30$, where ℓ is the length of each leg. So $14 + 2\ell = 30$, giving $\ell = 8$ cm.
6) **Choice A is correct.** 8.G.A.4 Perimeter scales linearly with side lengths. Ratio of perimeters equals ratio of corresponding sides: $\frac{20}{50} = \frac{2}{5}$.
7) **Choice C is correct.** 8.NS.A.1 For whole numbers, a rational square root means the square root is actually a whole number. That happens only for perfect squares such as 1, 4, 9, 16, and 25.
8) **Choice C is correct.** 8.G.B.7 The tree diagram shows 4 final branches, one for each outcome: HH, HT, TH, TT.
9) **Choice B is correct.** 8.EE.C.7b Each of the 4 morning branches splits into 3 afternoon branches: $4 \times 3 = 12$ final outcomes.
10) **The correct answer is** 200 **.** 8.EE.B.5 Compute $50 \times 4 = 200$.
11) **Choice D is correct.** 8.NS.A.1 Let $x = 0.4\overline{2} = 0.4222\ldots$. Then $10x = 4.\overline{2}$ and $100x = 42.\overline{2}$. Subtracting: $90x = 38$, so $x = \frac{38}{90} = \frac{19}{45}$.
12) **Choice D is correct.** 8.NS.A.2 $2^3 = 8$ and $3^3 = 27$. Since $8 < 20 < 27$, we have $2 < \sqrt[3]{20} < 3$.
13) **Choice C is correct.** 8.NS.A.2 $\sqrt{50} = 5\sqrt{2} \approx 5 \times 1.41 = 7.07$, not 5.0. All other statements are accurate estimates.
14) **Choice D is correct.** 8.EE.A.3 The student's coefficient 56.2 is outside $[1, 10)$. Correct form requires moving the decimal one more place: 5.62×10^4.
15) **Choice A is correct.** 8.G.B.7 Option C has zero interest (lowest cost) but requires \$125/month. Option A costs \$200 extra but is affordable at \$50/month. For someone with limited cash flow, Option A balances cost and affordability.
16) **Choice C is correct.** 8.G.C.9 Lateral area $= 2(10)(4) + 2(6)(4) = 80 + 48 = 128$ cm^2 ✓. Area of two bases $= 2(10)(6) = 120$ cm^2. Total $= 128 + 120 = 248$ cm^2.
17) **Choice A is correct.** 8.G.A.1 Reflecting across $y = x$ swaps coordinates: $(x, y) \to (y, x)$. The vertex $(2, 1) \to (1, 2)$, which is part of the reflected rectangle shown.
18) **Choice D is correct.** 8.EE.B.6 Slope $= \dfrac{-2 - 4}{2 - (-1)} = \dfrac{-6}{3} = -2$.
19) **The correct answer is A,C.** 8.EE.B.5 Option A is negative because the diver's height above sea level decreases as time increases. Option C is negative because temperature decreases as altitude increases. Options B, D, and E show increases, so they have positive slope.
20) **Choice A is correct.** 8.EE.C.8b Add 3: $x > -4$. Open circle at -4 with right ray confirms this.
21) **Choice C is correct.** 8.SP.A.3 The y-intercept (15) is the cost when $u = 0$, representing fixed storage costs.
22) **Choice D is correct.** 8.EE.A.1 Negative exponent flips the fraction: $\left(\frac{1}{3}\right)^{-2} = \left(\frac{3}{1}\right)^{2} = 3^2 = 9$.
23) **Choice C is correct.** 8.EE.A.2 $15 \times 15 = 225$, so $\sqrt{225} = 15$.
24) **Choice C is correct.** 8.EE.A.4 Divide: $\frac{2 \times 10^{12}}{4 \times 10^{12}} = \frac{2}{4} \times 10^0 = 0.5 \times 10^0 = 0.5$ kilotons.
25) **The correct answer is** 2 **.** 8.F.A.3 The term x^2 has exponent 2.
26) **Choice C is correct.** 8.EE.C.7 Subtract 8: $-2x = -8$. Divide by -2: $x = 4$.
27) **Choice A is correct.** 8.EE.C.8a Set the expressions for y equal: $x + 2 = 2x - 1$, so $x = 3$. Then $y = 3 + 2 = 5$. Solution: $(3, 5)$.

Hi, Thoughtful Reader!

◇ A strong Grade 8 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

⋆ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 4 opportunities to rehearse test-day habits. ⋆

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 8 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

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

Jay Daie

Your Reading-and-Math Helper

PRACTICE TODAY, ACHIEVE TOMORROW!

Give your child the confidence and skills they need with **4 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
- 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!

4 PRINTED TESTS

+

2 ONLINE TESTS

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