7

Nevada

Smarter Balanced

GRADE 8 MATH

PRACTICE TESTS

$y = mx + b$

$A = \frac{1}{2}bh$

Practice Today Succeed Tomorrow!

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

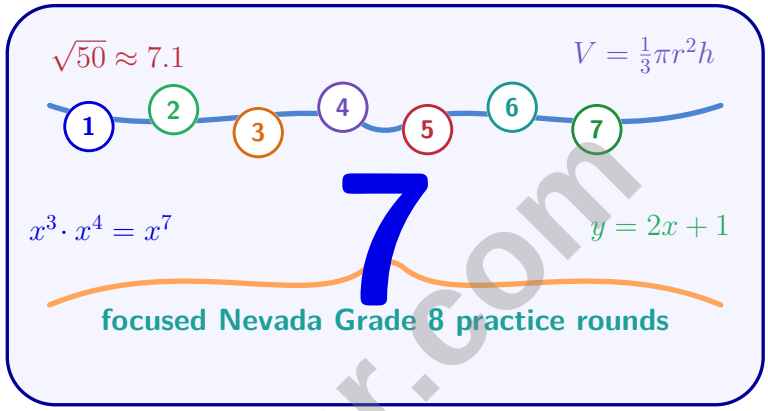
BUILD CONFIDENCE. SHARPEN SKILLS. ACE YOUR EXAM!

7 PRINTED TESTS | **2 ONLINE TESTS**

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

7 Nevada Smarter Balanced Grade 8 Math Practice Tests

Efficient Smarter Balanced Prep for Grade 8 Graphs, Equations, and Measures



Seven 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!

Seven focused rounds for sharper Smarter Balanced math thinking

This book gives you seven 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 seven-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?

Seven Smarter Balanced tests, 280 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.
Test 7	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.

Table of Contents

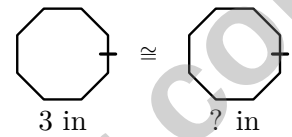
1) Factor completely: $5x^2 + 35x + 50$.

☐ A. $5(x^2 + 7x + 10)$
☐ B. $(5x + 5)(x + 10)$
☐ C. $5(x + 2)(x + 5)$
☐ D. $5(x + 10)(x + 1)$

2) For which values of m do the lines $y = mx + 3$ and $y = -2x + 6$ intersect at exactly one point?

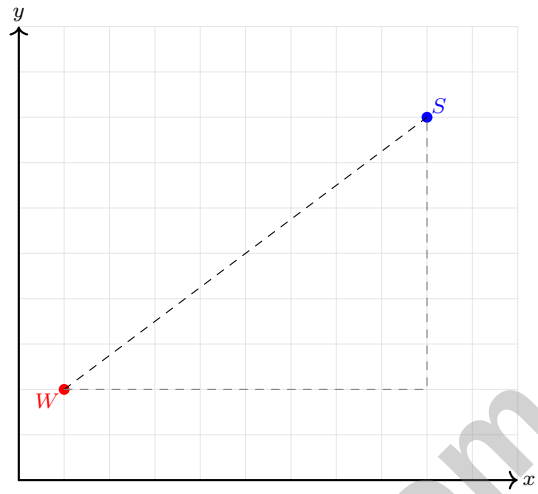
☐ A. $m \neq -2$
☐ B. $m = -2$ only
☐ C. $m = 3$ only
☐ D. All values of m

3) Two congruent regular polygons are shown. Each polygon has 8 sides. If one octagon has a side length of 3 inches, what is the side length of the other octagon?



☐ A. 1.5 inches
☐ B. 3 inches
☐ C. 6 inches
☐ D. 9 inches

4) A delivery truck travels from warehouse $W = (1, 2)$ to store $S = (9, 8)$. What is the distance in units?



☐ A. 10 units
☐ B. 8 units
☐ C. 14 units
☐ D. $\sqrt{90}$ units

5) What is the sum of the interior angles of an octagon?

☐ A. 1350°
☐ B. 900°
☐ C. 1260°
☐ D. 1080°

6) Find $(1.2 \times 10^6) + (8 \times 10^5)$ in scientific notation.

7) Solve $3x - 2 \leq 5x + 6$. What is the boundary value?

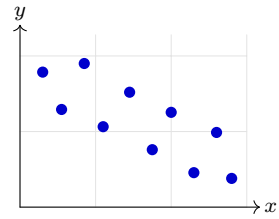
8) For the inequality $x + 3y \leq 9$, compute the left side at the origin $(0, 0)$.

9) A parallelogram has base 6 in and height 4 in. It is dilated by a scale factor of 2.5. What is the new height?

☐ A. 4 in
☐ B. 10 in
☐ C. 15 in
☐ D. 6.5 in

10) A rectangle has vertices at $(0, 0)$, $(4, 0)$, $(4, 2)$, and $(0, 2)$. If this rectangle is reflected across the line $y = x$, what is the length of the side that corresponds to the bottom side of the original rectangle (from $(0, 0)$ to $(4, 0)$)?

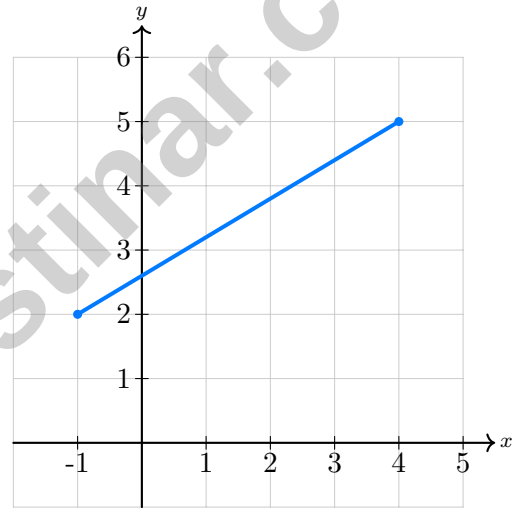
1)



A researcher studies the relationship between screen time (hours/day) and grade point average (GPA 0–4.0) for high school students. The scatter plot shows weak negative correlation ($r = -0.35$) with substantial scatter. The researcher writes: **"The data show that screen time weakly causes lower GPAs."** Which phrase in this statement is incorrect?

☐ A. *screen time*
☐ B. *lower GPAs*
☐ C. *weakly*
☐ D. *causes*

2)



Using the two points marked, which equation represents this line?

☐ A. $y = \frac{3}{5}x + \frac{13}{5}$
☐ B. $y = \frac{3}{5}x + 3$
☐ C. $y = 3x + 5$
☐ D. $y = \frac{2}{3}x + \frac{8}{3}$

3) If 5 kilograms of rice cost \$15, what is the unit price (constant of proportionality) in dollars per kilogram?

4) Solve: $\frac{3x-6}{2} < 6$

☐ A. $x > 6$
☐ B. $x < 18$
☐ C. $x > 18$
☐ D. $x < 6$

5) $\frac{1.8\times10^{-2}}{9\times10^{-8}} = ?$

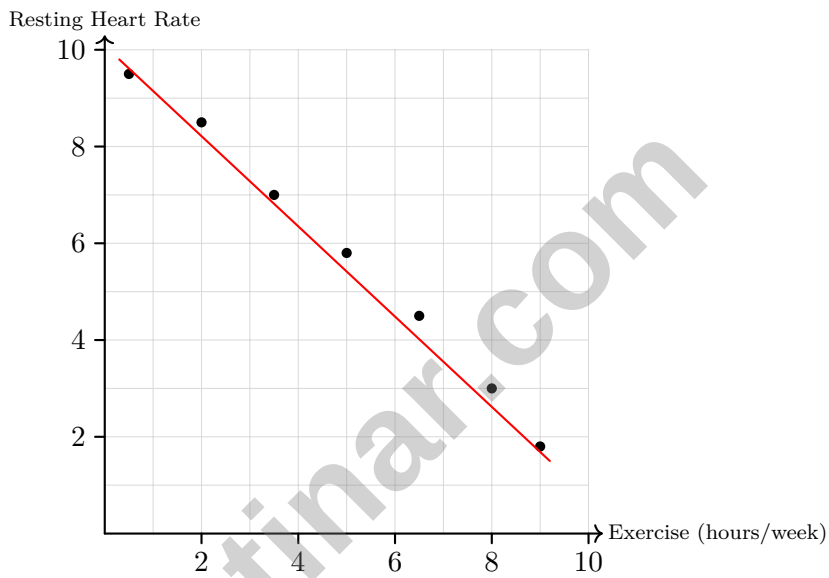
☐ A. 0.2×10^5
☐ B. 10×10^4
☐ C. 2×10^6
☐ D. 2×10^5

6) A phone company charges \$25 per month plus \$0.10 per text message. What is the total monthly cost for 100 texts?

1) A student finds the slope of the line through $(1, 3)$ and $(4, 9)$ and gets the answer $\frac{3}{6} = \frac{1}{2}$. What is the student's error?

- ☐ A. Did not simplify the fraction correctly
- ☐ B. Forgot to use the slope formula
- ☐ C. Subtracted in the wrong order in the numerator
- ☐ D. Used the formula $\frac{x_2 - x_1}{y_2 - y_1}$ instead of $\frac{y_2 - y_1}{x_2 - x_1}$

2)



The scatter plot shows a strong negative relationship between exercise and resting heart rate. Which statement is most accurate?

- ☐ A. Lower heart rates prevent people from exercising
- ☐ B. Exercise has no effect on heart rate
- ☐ C. People with higher heart rates exercise less on average
- ☐ D. More exercise causes lower heart rates

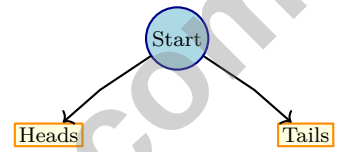
3)

	H	T
1	H1	T1
2	H2	T2

A coin is flipped and a spinner labeled 1, 2 is spun. What is the probability of getting an outcome where the coin is heads?

☐ A. $\frac{1}{4}$
☐ B. $\frac{1}{2}$
☐ C. $\frac{1}{3}$
☐ D. $\frac{3}{4}$

4) A probability experiment involves flipping a coin (heads or tails) and rolling a die (1 through 6). How many different outcomes are possible?



6 die outcomes each

☐ A. $2 + 6 = 8$
☐ B. $2 \times 6 = 12$
☐ C. $6^2 = 36$
☐ D. $2 + 6 \times 2 = 14$

5) Which pair of numbers are both irrational?

☐ A. $\sqrt{121}$ and π
☐ B. 0.505005... (non-repeating) and $\sqrt{16}$
☐ C. $-\frac{3}{7}$ and $\sqrt{15}$
☐ D. $\sqrt{15}$ and $\sqrt{24}$

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 C is correct.** 8.EE.C.7 GCF is 5: $5x^2 + 35x + 50 = 5(x^2 + 7x + 10) = 5(x + 2)(x + 5)$.
2) **Choice A is correct.** 8.EE.C.8a Two lines with different slopes always intersect at exactly one point. The lines $y = mx + 3$ and $y = -2x + 6$ have different slopes unless $m = -2$. If $m = -2$, the lines have the same slope but different y-intercepts, so they do not intersect.
3) **Choice B is correct.** 8.G.A.2 Congruent regular polygons have equal side lengths. Both octagons have side length 3 inches.
4) **Choice A is correct.** 8.G.B.8 $d = \sqrt{(9-1)^2 + (8-2)^2} = \sqrt{8^2 + 6^2} = \sqrt{64 + 36} = \sqrt{100} = 10$ units.
5) **Choice D is correct.** 8.G.A.5 For an octagon ($n = 8$): $(8 - 2) \times 180 = 6 \times 180 = 1080°$.
6) **The correct answer is** 2.0×10^6 **.** 8.EE.A.4 Rewrite: $1.2 \times 10^6 + 0.8 \times 10^6 = (1.2 + 0.8) \times 10^6 = 2.0 \times 10^6$ (coefficient 2.0 is in standard form).
7) **The correct answer is** -4 **.** 8.EE.C.8b Solving gives $x \geq -4$, so the boundary value is -4.
8) **The correct answer is** 0 **.** 8.EE.C.8b Substitute $(0, 0)$: $0 + 3(0) = 0$.
9) **Choice B is correct.** 8.G.A.4 $4 \times 2.5 = 10$ in.
10) **The correct answer is** 4 **.** 8.G.A.1 Reflections preserve side lengths. The reflected side has the same length as the original, which is 4 units.
11) **Choice B is correct.** 8.F.A.2 A rate: 0.15. B rate: $(80 - 55)/(200 - 100) = 25/100 = 0.25$. Since $0.25 > 0.15$, B is higher.
12) **Choice A is correct.** 8.G.B.6, 8.G.B.7 Using $a^2 + b^2 = c^2$: $14^2 + 48^2 = 196 + 2304 = 2500$, so $c = 50$ (scaled 7-24-25 triple).
13) **Choice C is correct.** 8.G.C.9 $V = \pi r^2 h = 3.14 \times 20.25 \times 11 = 3.14 \times 222.75 = 699.44$ m^3.
14) **Choice B is correct.** 8.SP.A.3 Extrapolation means predicting beyond observed data. Since only $q \in [1, 5]$ was observed, $q = 8$ requires extrapolation and carries risk.
15) **Choice A is correct.** 8.F.B.4 At constant speed with no initial distance, the slope is 60 mph and the intercept is 0. Equation: $d = 60h$.
16) **Choice C is correct.** 8.F.B.5 From 3 to 5 hours, the elevation drops from 3m to 1m, indicating a downhill segment (decreasing function).
17) **Choice B is correct.** 8.G.A.3 $D' = (8, 10)$. Distance: $\sqrt{8^2 + 10^2} = \sqrt{64 + 100} = \sqrt{164} = 2\sqrt{41}$.
18) **Choice C is correct.** 8.G.A.5 When parallel lines are cut by a transversal, all angles are either 67° or $180 - 67 = 113°$. Since $47° \neq 67°$ and $47° \neq 113°$, it does not appear.
19) **Choice A is correct.** 8.G.B.7 Corresponding angles are congruent. So $r = 41°$.
20) **The correct answer is A,B.** 8.EE.B.6 Options A and B both have slope 4, making them parallel. Option C has slope -4, option D has slope $\frac{1}{4}$, and option E has slope 2, so none of these match.
21) **Choice B is correct.** 8.G.C.9 $V = \frac{1}{3} \times (8 \times 8) \times 6 = \frac{1}{3} \times 64 \times 6 = 128$ cm^3.
22) **Choice C is correct.** 8.G.B.7 Large triangle $= \frac{1}{2} \times 16 \times 10 = 80$ ft^2. Small triangle $= \frac{1}{2} \times 8 \times 5 = 20$ ft^2. Remaining $= 80 - 20 = 60$ ft^2.
23) **Choice B is correct.** 8.SP.A.1 An upward trend means both variables increase together, indicating positive correlation. As temperature rises (moving right), ice cream sales rise (moving up).
24) **Choice A is correct.** 8.SP.A.4 Column-conditional frequency among public-transit users: $\frac{84}{108} = \frac{7}{9} \approx 0.78$.
25) **Choice B is correct.** 8.G.B.8 Absolute deviations are $|5 - 10| = 5$, $|8 - 10| = 2$, $|12 - 10| = 2$, and $|15 - 10| = 5$. The sum is 14, so the MAD is $14 \div 4 = 3.5$.
26) **Choice C is correct.** 8.G.B.7 P(section 1 all three times) $= \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} = \frac{1}{64}$.
27) **Choice C is correct.** 8.EE.C.7b Arranging all 6 books in order is a factorial: $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$.
28) **Choice B is correct.** 8.SP.A.2 A lower MAD indicates smaller residuals overall, meaning the trend line passes closer to the data points.

Author's Note

A Page for Persistence

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 7 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.

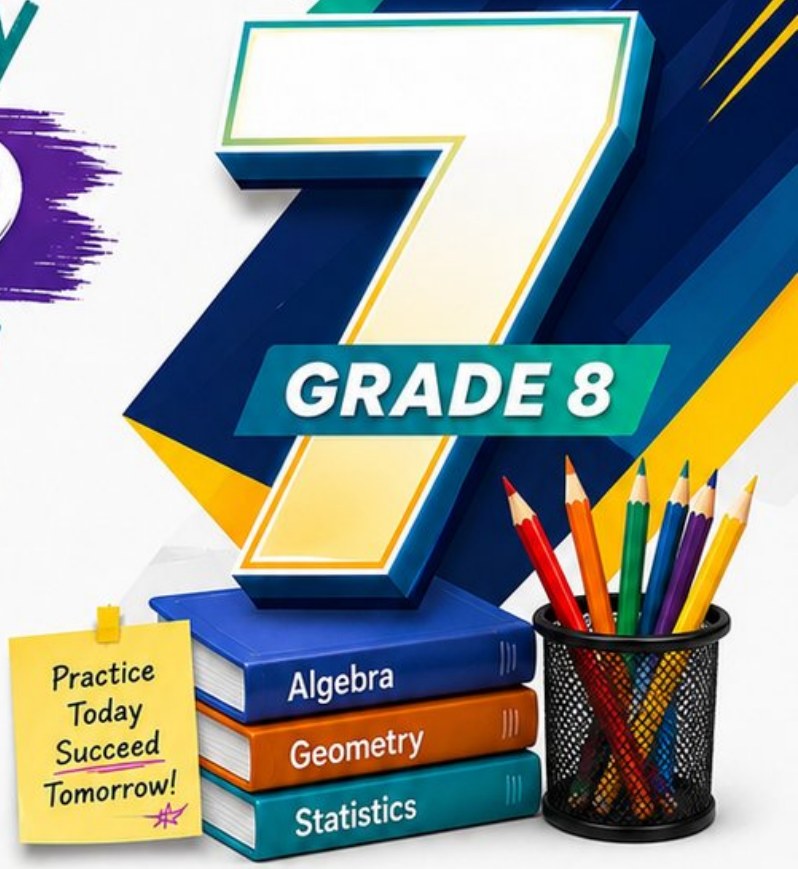
Grade 8 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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 **7 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?

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