# 7 Nevada Smarter Balanced

# Grade 7 Math Practice Tests

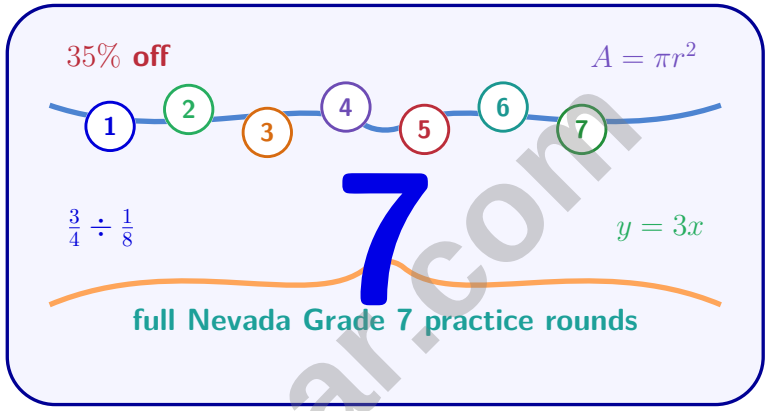
ONLINE

7 PRINTED TESTS + 2 ONLINE TESTS

## Standards Aligned Problem Solving For Comprehensive Assessment Programs

# 8 Nevada Smarter Balanced Grade 7 Math Practice Tests

*A focused boost for Nevada Grade 7 percents, markups, equations, geometric measurement, statistics, and simulations*






**Eight complete 40-question Grade 7 Smarter Balanced practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.**

**Jay Daie and Reza Nazari**

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# Welcome, Nevada Grade 7 Problem Solver!

Eight focused rounds for sharper Smarter Balanced math thinking

This book gives you seven full Grade 7 Smarter Balanced math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, 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

An eight-session plan for confident Grade 7 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 a proportion, equation, diagram, number line, 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, 280 questions, and a complete review path

| Part | What You Will Practice |
|---|---|
| Tests 1–3 | Proportional relationships, unit rates, percents, rational-number operations, and careful reading. |
| Tests 4–6 | Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving. |
| Tests 7–8 | Statistics, probability, mixed review, stamina, and choosing efficient strategies. |
| Answer Pages | Compact keys and explanations that show why each answer works. |



The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.

# Table of Contents

1) A rope of length $\frac{5}{6}$ meter is cut into pieces, each $\frac{1}{12}$ meter long. How many pieces are there?

☐ A. 5 pieces
☐ B. 10 pieces
☐ C. 15 pieces
☐ D. 20 pieces

2) A bacteria population is multiplied by 0.5 each hour (halved). Starting with 16 bacteria, how many remain after 2 hours?

☐ A. 4
☐ B. 8
☐ C. 12
☐ D. 32

3) At noon, the temperature is $3°C$. By midnight, the temperature falls to $-12°C$. How many degrees did the temperature drop?

4) A customer's bill at a cafe is \$36. She wants to tip 20% and then split the total equally with a friend. How much does each person pay?

☐ A. \$18.00
☐ B. \$43.20
☐ C. \$25.20
☐ D. \$21.60

5) Temperature drops 20 degrees from 10 degrees. Express the drop (change) as a signed number.

☐ A. 20 (ignores the direction of change)
☐ B. 30 (adds instead of subtracts)
☐ C. $-10$ (starting temperature)
☐ D. $-20$ (correct; drop is negative change)

6) Which expression is NOT equivalent to $8(x + 2)$?

☐ A. $8x + 16$
☐ B. $4(2x + 4)$
☐ C. $8x + 2$
☐ D. $2(4x + 8)$

7) A spinner with unequal sections is spun many times in a simulation. The relative frequency of one outcome converges to 0.32 after 10000 spins. What does this tell you about the theoretical probability of that outcome?

☐ A. The theoretical probability is exactly 0.32
☐ B. The theoretical probability is approximately 0.32
☐ C. The theoretical probability is less than 0.32
☐ D. The theoretical probability cannot be determined from this information

8) Miguel owed his friend \$18 (debt $= -18$). His friend forgave \$10 of the debt. How much does Miguel still owe? (Model his remaining debt.)

☐ A. $-\$28$
☐ B. \$28
☐ C. \$8
☐ D. $-\$8$

9) Simplify: $3x + 4y + 2z - x + y - z$

☐ A. $2x + 5y + z$
☐ B. $4x + 4y + 2z$
☐ C. $9xyz$
☐ D. $2x + 3y - z$

10) Maria earns \$12 per hour. How many hours must she work to earn at least \$144?

☐ A. $h < 12$
☐ B. $h \geq 12$
☐ C. $h \leq 144$
☐ D. $h > 12$

11) A cube's surface area is 294 $cm^2$. A second cube has edge length twice as long. What is the surface area of the larger cube?

☐ A. 588 $cm^2$
☐ B. 1176 $cm^2$
☐ C. 1764 $cm^2$
☐ D. 2352 $cm^2$

12) A football team loses 7 yards on one play and gains 13 yards on the next. What is the net change in yards?

☐ A. −20 yards
☐ B. −6 yards
☐ C. 6 yards
☐ D. 20 yards

13) Evaluate $a^2 + 2ab$ when $a = 3$ and $b = 2$.

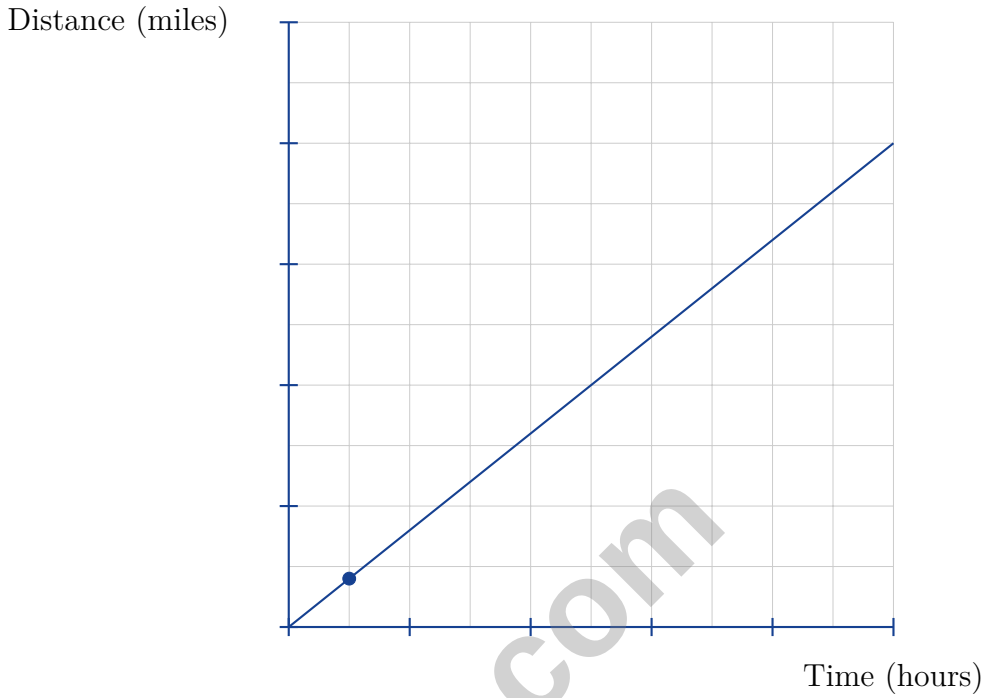
☐ A. 12
☐ B. 13
☐ C. 18
☐ D. 15

14) Match each expression to the rule used:

| Expression | Rule |
|---|---|
| $x^5 \cdot x^7 = x^{12}$ | I. Power Rule |
| $(x^3)^4 = x^{12}$ | II. Product Rule |
| $\frac{x^{20}}{x^8} = x^{12}$ | III. Quotient Rule |

Which statement correctly matches an expression to its rule?

☐ A. $x^5 \cdot x^7 = x^{12}$ uses Power Rule
☐ B. $(x^3)^4 = x^{12}$ uses Quotient Rule
☐ C. $\frac{x^{20}}{x^8} = x^{12}$ uses Product Rule
☐ D. $\frac{x^{20}}{x^8} = x^{12}$ uses Quotient Rule




1)

A car drives at a constant speed shown by this graph with unit-rate point $(1, 0.8)$. Which equation represents this relationship?

☐ A. $y = 8x$
☐ B. $y = 1.25x$
☐ C. $y = 5x$
☐ D. $y = 0.8x$

2) A gym membership costs $m$ dollars per month. With a 15% sign-up bonus (you pay less), which form is **not** equivalent to the others?

☐ A. $m - 0.15m$
☐ B. $0.85m$
☐ C. $m(0.85)$
☐ D. $1.15m$

3) Two histograms show daily sleep hours for working professionals vs. students. Working Professionals: concentrated at 5–7 hours. Students: concentrated at 7–9 hours. Both show similar spread. Which is the best interpretation?

☐ A. Students typically sleep approximately 2 hours more than professionals
☐ B. Students are healthier than professionals
☐ C. Sleep requirements are identical for both groups
☐ D. Professionals never sleep as much as students

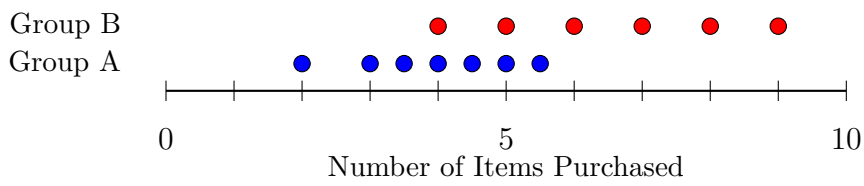
4) A park is shaped like a large rectangle (30 m × 20 m) with a triangular picnic area (20 m base, 5 m height) and a circular pond (radius 3 m) inside. What is the open grassy area? (Use $\pi \approx 3.14$.)

☐ A. 521.74 $m^2$
☐ B. 550 $m^2$
☐ C. 571.74 $m^2$
☐ D. 600 $m^2$

5) A triangular prism has a volume of 240 $cm^3$ and a depth of 10 cm. What is the area of the triangular base?

☐ A. 12 $cm^2$
☐ B. 24 $cm^2$
☐ C. 36 $cm^2$
☐ D. 48 $cm^2$

6) Evaluate: $\frac{5}{12} + \frac{1}{3}$. Express your answer as a fraction in simplest form.




1)

Looking at the dot plots of items purchased, which statement best describes the overlap?

- ☐ A. Group A typically buys fewer items; Groups overlap at 4–5
- ☐ B. Group B always buys more items than Group A
- ☐ C. No overlap exists between the groups
- ☐ D. Both groups buy identical amounts

2) In a proportion $\frac{18}{90} = \frac{p}{100}$, which common error would give $p = 500$?

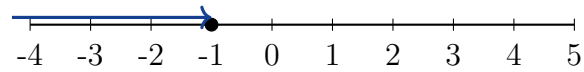
- ☐ A. Using 90 as the percent instead of the whole
- ☐ B. Cross-multiplying incorrectly
- ☐ C. Using $\frac{90}{18}$ instead of $\frac{18}{90}$
- ☐ D. Flipping the proportion to $\frac{100}{p} = \frac{18}{90}$

3) An item originally marked at \$80 is reduced to \$60. What is the percent decrease?

- ☐ A. 20%
- ☐ B. 33%
- ☐ C. 30%
- ☐ D. 25%

4) What negative common factor is factored out of $-8x - 16$?

5) On a number line, what inequality does this represent?




☐ A. $x > -1$
☐ B. $x < -1$
☐ C. $x \geq -1$
☐ D. $x \leq -1$

6) A simulation models the probability of a customer making a purchase as $\frac{2}{5}$. Which of the following spinners would be most appropriate for this simulation?

☐ A. A spinner with 3 equal sections, 1 shaded
☐ B. A spinner with 5 equal sections, 2 shaded
☐ C. A spinner with 10 equal sections, 4 shaded
☐ D. A spinner with 5 equal sections, 3 shaded

7) A student solved $4x - 3 > 5$ and got $x > 2$. Which is the correct next step to verify this?

☐ A. Check $x = 2$: $4(2) - 3 = 5 \not> 5$ ✓, so the boundary is correct.
☐ B. Check $x = 1$: $4(1) - 3 = 1 \not> 5$ ✓, so values below 2 don't work.
☐ C. Check $x = 3$: $4(3) - 3 = 9 > 5$ ✓, so values above 2 work.
☐ D. Flip the sign: $x < 2$ (students must flip for negative coefficients).

8) A cube's edge length is $s$ cm. If the surface area is 600 $cm^2$, which equation correctly represents this relationship?

☐ A. $6s = 600$
☐ B. $s^3 = 600$
☐ C. $6s^2 = 600$
☐ D. $2s + 2s + 2s = 600$

# Smarter Balanced Assessment Consortium Grade 7 Practice Test Answer Keys

**How to use this section with a Grade 7 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 Smarter Balanced Assessment Consortium practice test.**

# Practice Test Answers and Explanations

## Practice Test 1 Answers and Explanations

1) **Choice B is correct.** 7.NS.1-7.NS.3 $\frac{5}{6} \div \frac{1}{12} = \frac{5}{6} \times \frac{12}{1} = 10$.
2) **Choice A is correct.** 7.NS.2 After 1 hour: $16 \times 0.5 = 8$ bacteria. After 2 hours: $8 \times 0.5 = 4$ bacteria. Multiplying by a decimal less than 1 decreases the quantity (scaling).
3) **The correct answer is** 15 **.** 7.NS.1-7.NS.3 The temperature drop is $3 - (-12) = 3 + 12 = 15$ degrees.
4) **Choice D is correct.** 7.RP.3 Tip: $0.20 \times 36 = \$7.20$. Total bill: $36 + 7.20 = \$43.20$. Each person pays $43.20 \div 2 = \$21.60$.
5) **Choice D is correct.** 7.NS.1-7.NS.3 A decrease or drop is represented by a negative number. A 20-degree drop is $-20$.
6) **Choice C is correct.** 7.EE.1-7.EE.2 Expand $8(x+2) = 8x+16$. Check others: A) $8x+16$ ✓, B) $4(2x+4) = 8x+16$ ✓, D) $2(4x+8) = 8x+16$ ✓. Only C) $8x+2 \neq 8x+16$ is not equivalent.
7) **Choice B is correct.** 7.SP.5-7.SP.8 By the Law of Large Numbers, as the number of trials increases, the relative frequency (experimental probability) converges to the theoretical probability. With 10000 spins, the relative frequency of 0.32 is a strong estimate of the true theoretical probability.
8) **Choice D is correct.** 7.NS.1b Miguel's debt decreases by \$10, so: $-18 + 10 = -8$. He still owes \$8 (represented as $-8$ in debt model).
9) **Choice A is correct.** 7.EE.1 Combine like terms by variable: $(3-1)x + (4+1)y + (2-1)z = 2x + 5y + z$.
10) **Choice B is correct.** 7.EE.4b "At least \$144" means $\geq$. Set up: $12h \geq 144$. Divide by 12: $h \geq 12$.
11) **Choice B is correct.** 7.G.4-7.G.6 First cube: $6s_1^2 = 294 \Rightarrow s_1^2 = 49 \Rightarrow s_1 = 7$ cm. Second cube: $s_2 = 2 \times 7 = 14$ cm. $SA = 6(14)^2 = 6(196) = 1176$ cm$^2$.
12) **Choice C is correct.** 7.NS.1-7.NS.3 Loss of 7 yards is $-7$; gain of 13 is $+13$: $-7 + 13 = 6$ yards.
13) **Choice D is correct.** 7.EE.1-7.EE.2 Substitute: $(3)^2 + 2(3)(2) = 9 + 12 = 15$.
14) **Choice D is correct.** 7.EE.1-7.EE.2 Correct matches: I (Product), II (Power), III (Quotient). Choice D correctly identifies the Quotient Rule for $\frac{x^{20}}{x^8} = x^{12}$.
15) **Choice B is correct.** 7.EE.4a Activation fee is \$29.99 plus \$9.99 per month. Formula: $C = 9.99n + 29.99$.
16) **Choice B is correct.** 7.EE.3-7.EE.4 Discount % $= \frac{\text{savings}}{\text{original}} \times 100 = \frac{12}{60} \times 100 = 20\%$.
17) **Choice C is correct.** 7.G.1-7.G.5 Multiply the drawing length by the scale: $7 \times 4 = 28$ m.
18) **Choice A is correct.** 7.G.1-7.G.5 Zoom ratio: $10/8 = 1.25$. Drawing is enlarged by 1.25 times, so the new scale is 5 m/1.25 = 4 m per cm, or 1 cm : 4 m.
19) **The correct answer is** 6 **.** 7.RP.1-7.RP.3 Unit rate $= 18 \div 3 = 6$ loaves per hour.
20) **Choice D is correct.** 7.G.4-7.G.6 $A = \pi r^2 = 3.14 \times 4^2 = 3.14 \times 16 = 50.24$ cm$^2$.
21) **The correct answer is** \$48.83 **.** 7.RP.3 Tax $= 0.085 \times 45 = \$3.825 \approx \$3.83$. Final price $= 45 + 3.83 = \$48.83$.
22) **The correct answer is A,B.** 7.RP.3 Methods A and B are mathematically valid ways to find 32% of 500. Method C incorrectly inverts the fraction. Method D uses division instead of multiplication and gives an incorrect equation.
23) **Choice C is correct.** 7.G.4-7.G.6 $V = \pi r^2 h \approx 3.14 \times 2^2 \times 6 = 3.14 \times 4 \times 6 = 75.36$ cm$^3$.
24) **Choice A is correct.** 7.SP.1-7.SP.4 Surveying only customers at one store at one time is a convenience sample because it only includes people who are easy to reach, not a random selection of all teenagers in the city.
25) **Choice B is correct.** 7.SP.1-7.SP.4 System A's small MAD (0.5 min) means students wait reliably 8 minutes. System B's large MAD (1.8 min) means unpredictable waits: some 6 min, some 10+ min. Consistency matters for user experience.
26) **Choice D is correct.** 7.SP.1-7.SP.4 Counting occurrences: 2 (twice), 3 (three times), 4 (four times), 5 (twice), 6 (twice), 7 (once), 9 (once). The value 4 appears most frequently, making it the mode.
27) **Choice B is correct.** 7.SP.5-7.SP.8 "Win" sections: 2 out of 8. $P(\text{Win}) = \frac{2}{8} = \frac{1}{4}$.
28) **Choice C is correct.** 7.NS.1-7.NS.3 $1.5 + 2.3 = 3.8$.

## Hi, Grade 7 Math Star!

◇ You finished this practice set with real effort. Grade 7 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 7 full Grade 7 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 7 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 7 Math Friend

# Practice Today. Succeed Tomorrow!

This book includes 7 full-length Math practice tests and 2 online tests to help Grade 7 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

Perfect for classroom use, homework, test preparation, and extra practice at home.

## THIS BOOK INCLUDES:

- **7** Full-Length Printed Tests
- **2** Online Practice Tests
- Detailed Answer Explanations

### MORE PRACTICE. GREATER RESULTS.

Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

## WHAT YOU'LL GAIN

**Stronger Math Skills**
Build a solid foundation through targeted practice and review.

**Better Problem Solving**
Develop logical thinking and effective solution strategies.

**Deeper Understanding**
Reinforce key concepts with clear explanations and meaningful practice.

**Test Confidence**
Familiarize with test formats and improve accuracy and speed.

**Achieve Success**
Build confidence and perform your best on test day.

## TOPICS COVERED

- Ratios & Proportions
- The Number System
- Expressions & Equations
- Geometry
- Percents & Decimals
- Statistics & Probability
- Data Analysis
- Measurement & Conversions
- Algebraic Thinking
- And More!

### 2 ONLINE TESTS

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

### 2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!

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