

9

New Mexico

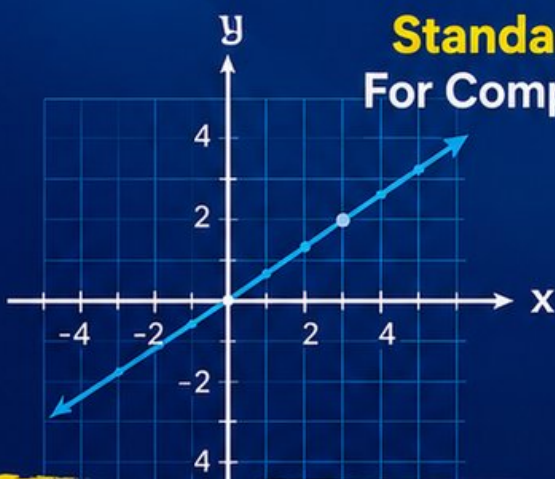
NM MSSA

Grade 8

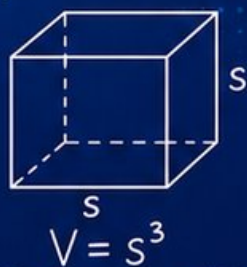
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



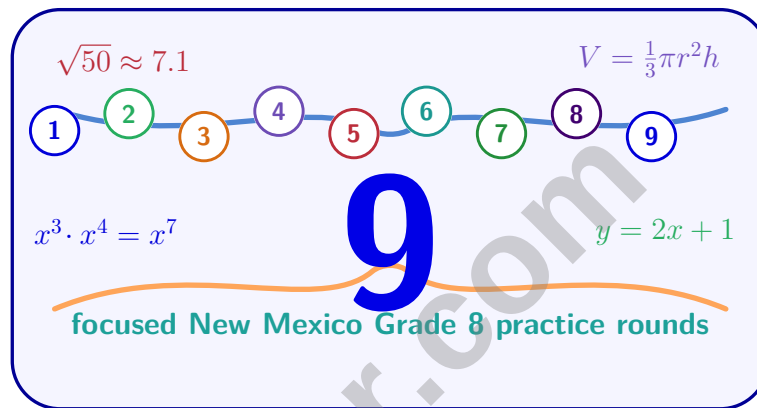
$$2x + 3y = 12$$
$$y = mx + b$$

**9** PRINTED
TESTS**2** ONLINE
TESTS

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

9 New Mexico NM MSSA Grade 8 Math Practice Tests

Standards-Aligned New Mexico Practice for Functions, Geometry, Data, and Equations



Nine complete 40-question Grade 8 NM MSSA 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, New Mexico Grade 8 Problem Solver!

Nine focused rounds for sharper NM MSSA math thinking

This book gives you nine full Grade 8 NM MSSA 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 New Mexico 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 nine-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.

New Mexico 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?

Nine NM MSSA tests, 360 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 7–9	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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& answers

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1) A line passes through $(0, 7)$ and $(3, 1)$. What is the slope?

☐ A. 2

☐ C. 3

☐ B. -3

☐ D. -2

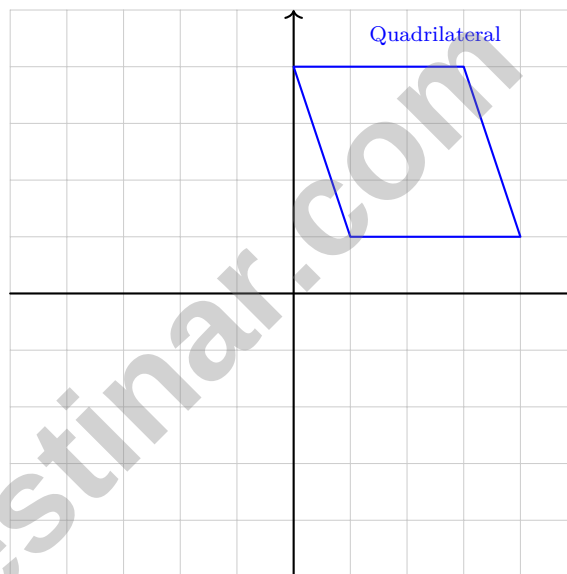
2) A bank offers 6% simple interest. If you deposit \$5,000 for 18 months, how much interest will you earn?

☐ A. \$300

☐ C. \$600

☐ B. \$900

☐ D. \$450



3)

If the quadrilateral is translated 2 units left and 3 units down, what is the new position of the vertex originally at $(4, 1)$?

☐ A. $(2, -2)$

☐ C. $(2, 4)$

☐ B. $(6, 4)$

☐ D. $(1, 1)$



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4) A temperature increases by 3° per hour. If it starts at 12°C and must stay below 30°C , which inequality represents valid times (in hours)?

☐ A. $t < 6$

☐ C. $t \leq 6$

☐ B. $t > 6$

☐ D. $t \geq 6$

5) Simplify $(p^{-2})^3$.

☐ A. p^1

☐ C. p^{-5}

☐ B. p^6

☐ D. p^{-6}

6) $(2 \times 10^2) \times (3 \times 10^3) \times (5 \times 10^1) = ?$

☐ A. 3×10^6

☐ C. 3×10^7

☐ B. 3×10^8

☐ D. 3×10^5

7) In how many ways can 4 students be arranged in a line for a class photo?

8) A student reads 25 pages of a book per day. How many days to read 200 pages? (Proportional relationship.)

☐ A. 5 days

☐ C. 7 days

☐ B. 6 days

☐ D. 8 days



9) Solve for x : $3(x + 1) = 2(x + 4)$

☐ A. $x = 2$

☐ C. $x = -1$

☐ B. $x = 8$

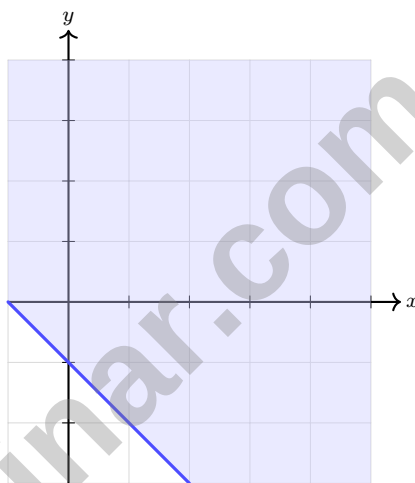
☐ D. $x = 5$

10) A student expands $(x + 2)(x + 3)$ and writes $x^2 + 5x + 6$. Is this correct?

☐ A. Yes, it is correct.

☐ C. No; the middle term is wrong.

☐ B. No; the constant term is wrong.

☐ D. No; all terms are wrong.


11)

The line shown has equation $y = -x - 1$. With shading above, the inequality is:

☐ A. $y > -x - 1$

☐ C. $y \geq -x - 1$

☐ B. $y < -x - 1$

☐ D. $y \leq -x - 1$

12) Which statement about $y = \frac{3}{4}x + 2$ is TRUE?

☐ A. It is nonlinear because the slope is a fraction

☐ C. It is nonlinear because the y -intercept is positive

☐ B. It is linear and can be written in the form $y = mx + b$
☐ D. It is linear only if m is a whole number


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- 1) Shipping: $C(w) = 5 + 0.5w$. Competitor at $(0, 7)$, $(5, 9.5)$. Higher base cost?
- ☐ A. First ☐ C. Both same.
☐ B. Second ☐ D. Cannot be determined.
- 2) An event coordinator needs to select a chairperson from 4 candidates, a secretary from 5 candidates, and a treasurer from 3 candidates. How many different leadership teams can be formed?
- ☐ A. $4 + 5 + 3 = 12$ ☐ C. $5^{4+3} = 5^7$
☐ B. $4 \times 5 \times 3 = 60$ ☐ D. $(4 + 5) \times 3 = 27$
- 3) A residual plot shows the residuals for a trend line fit to a data set. What would a residual plot with no clear pattern indicate?
- ☐ A. There are no residuals ☐ C. The data is nonlinear
☐ B. The trend line is a good fit ☐ D. The trend line is a poor fit
- 4) A square pyramid has a volume of 192 m^3 and a height of 12 m. What is the side length of the square base?
- ☐ A. 4 m ☐ C. $4\sqrt{3}$ m
☐ B. 8 m ☐ D. 24 m
- 5) Which statement is true about the exterior angles of any convex polygon?
- ☐ A. Each exterior angle measures less than 90° . ☐ C. Exterior angles are always equal in any polygon.
☐ B. The sum of all exterior angles is always 360° . ☐ D. The sum depends on the number of sides.



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6) A deck of cards has 4 aces out of 52 cards. If you draw a card, replace it, and draw again, what is the probability that both draws are aces?

☐ A. $\frac{4}{52}$
☐ B. $\frac{16}{2704}$

☐ C. $\frac{1}{152}$
☐ D. $\frac{8}{52}$

7) A retail store analyzes 500 transactions. 350 included a sale item and 150 did not. Of those with a sale item, 245 were from returning customers. What relative frequency (as a percent) of transactions with sale items are from returning customers?

☐ A. 49%
☐ B. 56%

☐ C. 70%
☐ D. 84%

8) If the MAD of a data set is 0, and you add a new value equal to the current mean, what happens to the MAD?

☐ A. MAD becomes positive
☐ B. MAD stays 0
☐ C. MAD doubles

☐ D. Cannot determine without knowing the data

9) If $5.7 \times 10^? = 57,000$, what is the exponent?

☐ A. 3
☐ B. 2

☐ C. 5
☐ D. 4

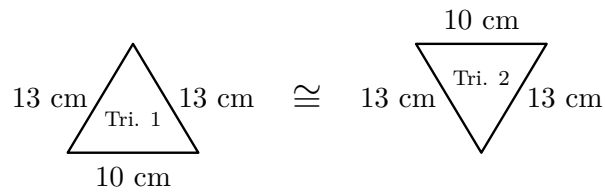
10) Which number lies between 3 and 4?

☐ A. $\sqrt{8}$
☐ B. $\sqrt{25}$

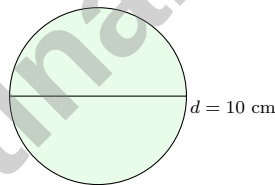
☐ C. $\sqrt{20}$
☐ D. $\sqrt{13}$



- 1) Two congruent isosceles triangles have equal bases but different orientations. Triangle 1 has base 10 cm and equal sides of 13 cm. What is the perimeter of Triangle 2?

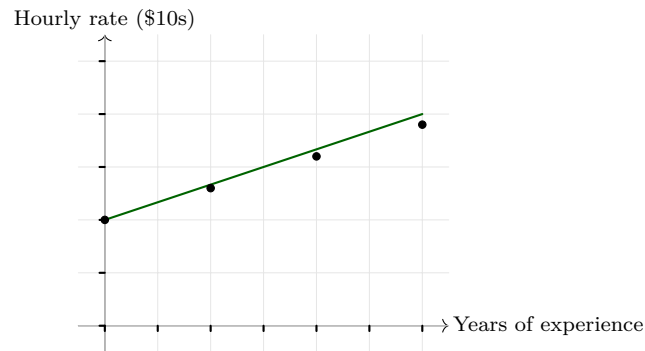


- ☐ A. 26 cm ☐ C. 36 cm
☐ B. 20 cm ☐ D. 52 cm
- 2) An aquarium is a rectangular prism with dimensions 4 feet (length) $\times$ 2 feet (width) $\times$ 2.5 feet (height). The bottom and four sides are glass, but the top is open (no glass). How much glass (in square feet) is needed to build the aquarium?
- ☐ A. 32 sq. ft. ☐ C. 38 sq. ft.
☐ B. 36 sq. ft. ☐ D. 48 sq. ft.



- 3)
- A sphere has a diameter of 10 cm. What is its approximate volume? (Use $\pi \approx 3.14$.)
- ☐ A. 314 cm^3 ☐ C. 1046.67 cm^3
☐ B. 523.33 cm^3 ☐ D. 1570.8 cm^3



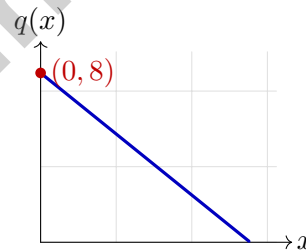


4)

A fitness trainer's hourly rate increases with years of experience: $R = 20 + 3x$, where R is hourly rate in dollars and x is years of experience. What is the rate for someone with 6 years of experience?

☐ A. \$32☐ C. \$38☐ B. \$50☐ D. \$60

5) 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 ☐ C. Equal negative slopes☐ B. Function q ☐ D. Not comparable

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New Mexico NM MSSA 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 New Mexico NM MSSA practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** **(8.EE.B.6)** Slope = $\frac{1-7}{3-0} = \frac{-6}{3} = -2$.
- 2) **Choice D is correct.** **(8.G.B.7)** 18 months = 1.5 years. $I = 5000 \times 0.06 \times 1.5 = \450 .
- 3) **Choice A is correct.** **(8.G.A.1)** Apply the translation $(x, y) \rightarrow (x-2, y-3)$: $(4, 1) \rightarrow (4-2, 1-3) = (2, -2)$.
- 4) **Choice A is correct.** **(8.EE.C.8b)** Set up: $12 + 3t < 30$. Subtract 12: $3t < 18$. Divide by 3: $t < 6$ hours.
- 5) **Choice D is correct.** **(8.EE.A.1)** Multiply exponents: $(p^{-2})^3 = p^{-2 \cdot 3} = p^{-6}$.
- 6) **Choice C is correct.** **(8.EE.A.4)** Multiply coefficients: $2 \times 3 \times 5 = 30 = 3 \times 10^1$. Add exponents: $10^{2+3+1} = 10^6$. Combine: $3 \times 10^1 \times 10^6 = 3 \times 10^7$.
- 7) **The correct answer is 24.** **(8.EE.C.7b)** Calculate the factorial: $4! = 4 \times 3 \times 2 \times 1 = 24$ different arrangements.
- 8) **Choice D is correct.** **(8.EE.B.5)** $y = 25x$. Solve $200 = 25x$: $x = 200/25 = 8$ days.
- 9) **Choice D is correct.** **(8.EE.C.7)** Expand: $3x + 3 = 2x + 8$. Subtract $2x$ and 3: $x = 5$.
- 10) **Choice A is correct.** **(8.EE.C.7)** FOIL: $(x+2)(x+3) = x^2 + 3x + 2x + 6 = x^2 + 5x + 6$. The student correctly applied FOIL.
- 11) **Choice C is correct.** **(8.EE.C.8b)** SOLID line (includes boundary) with shading ABOVE means $y \geq -x - 1$.
- 12) **Choice B is correct.** **(8.F.A.3)** $y = \frac{3}{4}x + 2$ perfectly matches the linear form $y = mx + b$ with $m = \frac{3}{4}$ and $b = 2$. Fractional slopes do not make a function nonlinear.
- 13) **The correct answer is 7.1.** **(8.NS.A.1)** Since $7^2 = 49$ and $7.1^2 = 50.41$, we have $\sqrt{50}$ between 7.0 and 7.1, closer to 7.1. More precisely, $7.07^2 \approx 49.98 \approx 50$. To the nearest tenth, $\sqrt{50} \approx 7.1$.
- 14) **Choice A is correct.** **(8.F.B.4)** Service call fee \$60 (intercept). Hourly rate \$40 (slope). Slope check: $\frac{180-60}{3-0} = \frac{120}{3} = 40$. Equation: $C = 40h + 60$.
- 15) **Choice C is correct.** **(8.F.B.5)** From week 3 to 5, the price jumps from \$1 to \$4 in 2 weeks, a rate of \$1.50/week. All other segments are flat.
- 16) **Choice D is correct.** **(8.G.A.3)** The original triangle has base 2 (from $(2, 0)$ to $(4, 0)$). The image has base 1. Scale factor: $\frac{1}{2}$.
- 17) **Choice A is correct.** **(8.G.B.6, 8.G.B.7)** From $15^2 + 20^2 = 225 + 400 = 625$, we get $c = 25$. The difference is $25 - 15 = 10$ (scaled 3-4-5 triple).
- 18) **The correct answer is $\frac{34}{99}$.** **(8.NS.A.1)** Set $x = 0.\overline{34}$, so $100x = 34.\overline{34}$. Subtracting: $100x - x = 34$, giving $99x = 34$ and $x = \frac{34}{99}$.
- 19) **Choice B is correct.** **(8.G.B.8)** Distance in units: $\sqrt{(5-2)^2 + (6-2)^2} = \sqrt{9+16} = 5$ units. In kilometers: $5 \times 2 = 10$ km.
- 20) **Choice D is correct.** **(8.SP.A.1)** The points form a diagonal band from upper left (low anxiety, high score) to lower right (high anxiety, low score), displaying negative correlation with clustered variation.
- 21) **The correct answer is A,D.** **(8.G.A.5)** A: Corresponding angles formed by parallel lines and a transversal are congruent—TRUE. B: Not all angles are equal; some are supplementary—FALSE. C: Alternate interior angles are congruent, not supplementary—FALSE. D: Alternate exterior angles are congruent—TRUE. E: Co-interior angles are supplementary (sum to 180°), not complementary—FALSE.
- 22) **Choice D is correct.** **(8.NS.A.2)** $\sqrt{5} \times \sqrt{20} = \sqrt{100} = 10$ exactly. This is a perfect pair.
- 23) **Choice C is correct.** **(8.EE.A.2)** Area of a square = $s^2 = 9^2 = 81 \text{ cm}^2$.
- 24) **Choice D is correct.** **(8.EE.C.8a)** Set the expressions equal: $\frac{1}{3}x + 2 = -\frac{2}{3}x + 5$. Add $\frac{2}{3}x$ to both sides: $x + 2 = 5$, so $x = 3$. Then $y = \frac{1}{3}(3) + 2 = 3$. Solution: $(3, 3)$.
- 25) **Choice B is correct.** **(8.F.A.1)** Input 5 maps to both 10 and 15, violating the definition of a function.
- 26) **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.
- 27) **Choice A is correct.** **(8.G.A.2)** Since triangle STU is congruent to triangle PQR and ST corresponds to PQ , we have $ST = PQ = 5 \text{ cm}$.



Hi, Confident Learner!

◇ This high-stamina book gave you nine substantial Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 8 math can feel big because it connects real numbers and exponents with linear equations, systems, functions, transformations, geometry, and data.

◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 8 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence Coach

CONFIDENCE TODAY, SUCCESS TOMORROW!

GRADE

8

Help your child excel in math with **9 full-length Grade 8 practice tests** designed to reflect real test formats and cover all key math standards.

With a wide variety of questions and real-world applications, this book builds the skills and confidence students need to achieve their best!



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 | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
| ✓ Measurement & Data | ✓ 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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Better **Results.**