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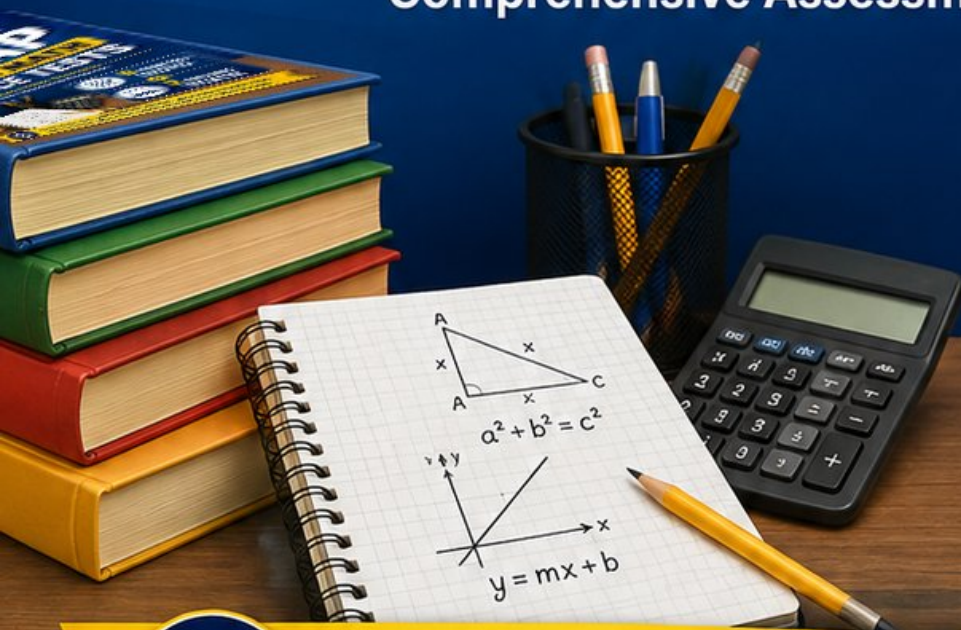
New Mexico

NM MSSA

GRADE 8 MATH

PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS



2 ONLINE
TESTS



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

6 New Mexico NM MSSA Grade 8 Math Practice Tests

Standards-Aligned Grade 8 Tests with Keys, Review, and Explanations



Six 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!

Six focused rounds for sharper NM MSSA math thinking

This book gives you six 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 six-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?

Six NM MSSA tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	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.



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Table of Contents

★ Practice Test 1	_____	15
★ Practice Test 2	_____	29
★ Practice Test 3	_____	44
★ Practice Test 4	_____	61
★ Practice Test 5	_____	77
★ Practice Test 6	_____	92
Practice Test Answer Keys	_____	109
Practice Test Answers and Explanations	_____	113

1) $\frac{8 \times 10^{-3}}{2 \times 10^{-7}} = ?$

☐ A. 6×10^4

☐ C. 4×10^4

☐ B. 4×10^{-10}

☐ D. 10×10^4

2) Which of the following best describes 0.99?

☐ A. Irrational☐ C. Equal to 1, rational☐ B. Between 0 and 1, rational☐ D. Greater than 1, irrational

3) A residual plot has residuals 1, -2, 1, 2, -1, 0. What is the greatest absolute residual?

4) Which is the best estimate of $\pi + \sqrt{10}$?

☐ A. $3.1 + 3.1 = 6.2$

☐ C. $4 + 4 = 8$

☐ B. $\pi + 10 = 13.14$

☐ D. $3.14 + 3.16 = 6.30$

5) What is 10^{-2} ?

☐ A. 100

☐ C. 0.01

☐ B. -100

☐ D. -0.01

6) Calculate the Mean Absolute Deviation for the data set {5, 10, 15, 20}.



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- 7) Solve for y : $\frac{y-3}{2} = 5$
- ☐ A. $y = 13$ ☐ C. $y = 4$
☐ B. $y = 7$ ☐ D. $y = 10$
- 8) Between which two consecutive integers does $\sqrt{53}$ lie?
- ☐ A. 6 and 7 ☐ C. 8 and 9
☐ B. 5 and 6 ☐ D. 7 and 8
- 9) A college savings plan earns 7% compound interest annually. If \$5,000 is invested for 10 years, approximately how much will be accumulated?
- ☐ A. \$8,500 ☐ C. \$11,500
☐ B. \$13,800 ☐ D. \$9,835
- 10) Compare the values: $\sqrt{36}$ and $\sqrt[3]{216}$. Which is larger?
- ☐ A. $\sqrt{36}$ is larger ☐ C. They are equal
☐ B. $\sqrt[3]{216}$ is larger ☐ D. Cannot be determined
- 11) The mass of an electron is about 9.1×10^{-31} kg. In which range does this fall?
- ☐ A. Between 0.1 and 1 kg ☐ C. Greater than 10^{-30} kg
☐ B. Equal to 9.1 kg ☐ D. Between 10^{-32} and 10^{-30} kg
- 12) Which equation represents a function where each input x has exactly one output y ?
- ☐ A. $x^2 + y^2 = 9$ (circle) ☐ C. $|y| = x$ (absolute value of y)
☐ B. $y = \sqrt[3]{x}$ (cube root) ☐ D. $y = \pm\sqrt{x}$ (both square roots)



13) The function $y = \sqrt{x-1}$ is LINEAR or NONLINEAR?

- ☐ A. Linear, because it has a constant slope
- ☐ B. Nonlinear, because $x \geq 1$
- ☐ C. Linear, because x appears once
- ☐ D. Nonlinear, because it contains a square root

14) Which two points give a slope of $-\frac{3}{2}$?

- ☐ A. (0, 3) and (2, 0)
- ☐ B. (1, 2) and (3, 4)
- ☐ C. (2, 4) and (4, 4)
- ☐ D. (0, 0) and (3, 2)

15) A slower cyclist riding 12 mph has a 9-mile head start. A faster cyclist riding 15 mph starts from the same point and rides in the same direction. How long will it take the faster cyclist to catch up?

- ☐ A. 2 hours
- ☐ B. 2.5 hours
- ☐ C. 3 hours
- ☐ D. 4 hours

16) A business profit function is $P(x) = 50x - 200$, where x is the number of units sold. What is the profit when 10 units are sold?

- ☐ A. \$300
- ☐ B. \$250
- ☐ C. \$200
- ☐ D. \$500

17) A cylindrical paint can has radius 2.5 feet and height 3 feet. The paint covers only the curved side (lateral surface), not the top or bottom. Which expression gives the area that needs paint?

- ☐ A. $2\pi(2.5)^2 + 2\pi(2.5)(3)$
- ☐ B. $2\pi(2.5)(3)$
- ☐ C. $\pi(2.5)^2 + \pi(2.5)(3)$
- ☐ D. $(2.5)(3)$



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- 1) A clue box for factoring the trinomial shows:

$x^2 + 9x + 20$

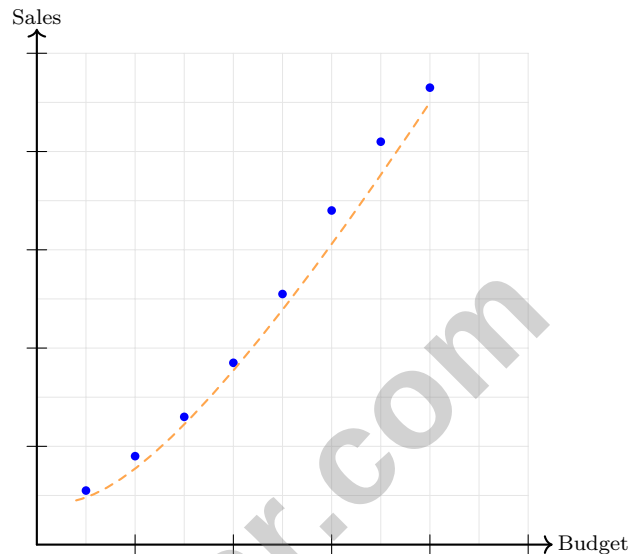
Multiply: 20 Add: 9

Which expression completes the factorization?

- | | |
|--|--|
| <p>☐ A. $(x + 4)(x + 5)$</p> <p>☐ B. $(x + 9)(x + 20)$</p> | <p>☐ C. $(x - 4)(x - 5)$</p> <p>☐ D. $x(x + 4)(x + 5)$</p> |
|--|--|
- 2) A figure is dilated by a scale factor of 3. How does the length of each side change?
- | | |
|--|---|
| <p>☐ A. Divided by 3</p> <p>☐ B. Multiplied by 3</p> | <p>☐ C. Unchanged</p> <p>☐ D. Increased by 3 inches</p> |
|--|---|
- 3) In a regular hexagon, each interior angle measures:
- | | |
|---|--|
| <p>☐ A. 144°</p> <p>☐ B. 120°</p> | <p>☐ C. 90°</p> <p>☐ D. 108°</p> |
|---|--|



- 4) A scatter plot of advertising budget (thousands of dollars) versus sales revenue (thousands) displays a curved, accelerating upward pattern. Initially, each dollar spent increases sales by 10 dollars; later, each dollar spent increases sales by 25 dollars. Which term describes this relationship?



- ☐ A. Nonlinear (power or exponential) association
- ☐ B. Weak positive correlation
- ☐ C. Moderate negative correlation
- ☐ D. Perfect linear relationship
- 5) Data from 280 households shows: 168 have broadband internet, 112 do not. Among those with broadband, 126 subscribed to streaming services. What is the relative frequency of streaming subscribers among broadband users?
- ☐ A. 0.45
- ☐ B. 0.67
- ☐ C. 0.75
- ☐ D. 0.85



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

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

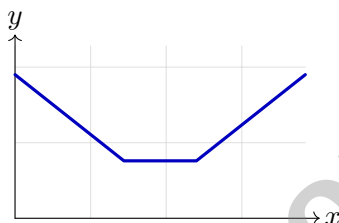
☐ A. 3

☐ C. 4

☐ B. 2

☐ D. 0

2) An elevator moves: down for 10 seconds, stops for 5 seconds, up for 8 seconds. Sketch the height-vs.-time graph. Which shape describes it?



☐ A. Three straight segments: decreasing, flat, increasing

☐ C. One increasing line across all time

☐ B. One decreasing line across all time

☐ D. A parabola opening upward

3) A right triangle has legs of 3 and 4. Which statement is true?

☐ A. The hypotenuse is 7

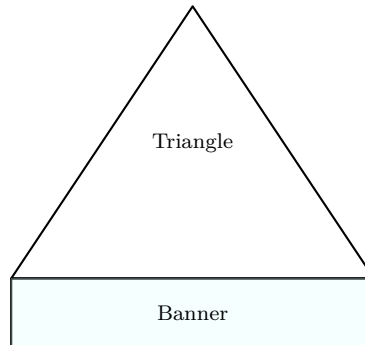
☐ C. The legs are 3 and 5

☐ B. The hypotenuse is 5

☐ D. The hypotenuse is 1



- 4) A sign is triangular (base 8 ft, height 6 ft) with a rectangular banner (8 ft by 1.5 ft) attached to the base. What is the total area?



- ☐ A. 12 ft^2 ☐ C. 36 ft^2
☐ B. 24 ft^2 ☐ D. 42 ft^2
- 5) If 5 kilograms of rice cost \$15, what is the unit price (constant of proportionality) in dollars per kilogram?

- 6) A point $Q(6, 8)$ is dilated to $Q'(3, 4)$. If the dilation center is the origin, what is the scale factor?

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



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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 C is correct.** **(8.EE.A.4)** Divide coefficients: $8 \div 2 = 4$. Subtract exponents: $10^{-3-(-7)} = 10^4$. Result: 4×10^4 .
- 2) **Choice C is correct.** **(8.NS.A.1)** $0.\overline{99} = 0.999\ldots = 1$. This repeating decimal is rational and equals exactly 1. (Algebraically, if $x = 0.999\ldots$, then $10x = 9.999\ldots$, so $10x - x = 9$, giving $x = 1$.)
- 3) **The correct answer is 2.** **(8.SP.A.2)** The largest absolute value among the residuals is 2.
- 4) **Choice D is correct.** **(8.NS.A.2)** Using $\pi \approx 3.14$ and $\sqrt{10} \approx 3.16$ (since $3.16^2 \approx 9.99$), the sum is approximately 6.30.
- 5) **Choice C is correct.** **(8.EE.A.1)** $10^{-2} = \frac{1}{10^2} = \frac{1}{100} = 0.01$.
- 6) **The correct answer is 5.** **(8.G.B.8)** Mean = 12.5. Deviations: $|5 - 12.5| = 7.5$, $|10 - 12.5| = 2.5$, $|15 - 12.5| = 2.5$, $|20 - 12.5| = 7.5$. Sum = 20. MAD = $20/4 = 5$.
- 7) **Choice A is correct.** **(8.EE.C.7)** Multiply by 2: $y - 3 = 10$. Add 3: $y = 13$.
- 8) **Choice D is correct.** **(8.NS.A.2)** $7^2 = 49$ and $8^2 = 64$. Since $49 < 53 < 64$, we have $7 < \sqrt{53} < 8$.
- 9) **Choice D is correct.** **(8.G.B.7)** $A = 5000(1.07)^{10} \approx 5000 \times 1.967 = \$9,835$.
- 10) **Choice C is correct.** **(8.EE.A.2)** $\sqrt{36} = 6$ and $\sqrt[3]{216} = 6$, so they are equal.
- 11) **Choice D is correct.** **(8.EE.A.3)** Since $-32 < -31 < -30$, we have $10^{-32} < 9.1 \times 10^{-31} < 10^{-30}$.
- 12) **Choice B is correct.** **(8.F.A.1)** Option B: every real input x has exactly one real cube root. Option A (circle): fails VLT. Option C: every positive x gives two y -values ($\pm x$). Option D: every positive x gives two outputs.
- 13) **Choice D is correct.** **(8.F.A.3)** The presence of a square root makes this function nonlinear. Linear functions can only have x to the first power and no radicals.
- 14) **Choice A is correct.** **(8.EE.B.5)** Option A: slope = $\frac{0-3}{2-0} = \frac{-3}{2} = -\frac{3}{2}$.
- 15) **Choice C is correct.** **(8.EE.C.8c)** Let t = the time in hours after the faster cyclist starts. The faster cyclist travels 15t miles, and the slower cyclist's distance from the same starting point is $9 + 12t$. Set $15t = 9 + 12t$, so $3t = 9$ and $t = 3$.
- 16) **Choice A is correct.** **(8.F.A.1)** Substitute $x = 10$: $P(10) = 50(10) - 200 = 500 - 200 = 300$. Profit is \$300.
- 17) **Choice B is correct.** **(8.G.C.9)** Lateral (curved side) surface area = $2\pi rh = 2\pi(2.5)(3)$. Options A includes the bases; C mixes formulas; D ignores π entirely.
- 18) **Choice C is correct.** **(8.G.A.1)** All rigid transformations preserve distance (side length) and angles. Position, orientation, and quadrant location may change during transformation.
- 19) **Choice C is correct.** **(8.EE.B.6)** The slope of the given line is 2. The perpendicular slope is $-\frac{1}{2}$ (negative reciprocal).
- 20) **Choice A is correct.** **(8.EE.C.8b)** Solving $-x + 2 > 5$ gives $-x > 3$, so $x < -3$. Only $x = -4$ satisfies this (since $-4 < -3$).
- 21) **Choice B is correct.** **(8.EE.C.8b)** Check boundary: $-2(-1) + 1 = 2 + 1 = 3$. The point IS on $-2x + y = 3$. But for strict inequality $<$, the boundary is excluded, so $(-1, 1)$ is NOT in the solution.
- 22) **The correct answer is A, C.** **(8.G.A.4)** Correct: (A) All linear measurements (sides, perimeter) are multiplied by 2.5. (C) Area is multiplied by $(2.5)^2 = 6.25$. Incorrect: (B) Angles are congruent in dilation, not scaled. (D) Perimeter is multiplied, not divided, by 2.5. (E) Dilation preserves shape; polygon type does not change.
- 23) **Choice A is correct.** **(8.G.C.9)** Since $V_{\text{cone}} = \frac{1}{3}V_{\text{cyl}}$, the cone's volume is $\frac{1}{3} \times 450 = 150 \text{ m}^3$.
- 24) **Choice B is correct.** **(8.SP.A.3)** The line crosses the y -axis at $(0, 1)$, so the y -intercept is 1.
- 25) **Choice B is correct.** **(8.EE.C.7b)** Option B specifies distinct positions (first position vs second position), so the order in which students are arranged matters—this is a permutation. Options A, C, and D are selections where order does not matter (combinations): we only care WHO is selected, not the order.
- 26) **Choice C is correct.** **(8.EE.B.5)** Substitute $t = 3.5$: $d = 12(3.5) = 42$ miles. The proportional relationship scales with time.
- 27) **Choice C is correct.** **(8.EE.C.8a)** Add the equations: $(x + 2y) + (3x - 2y) = 10 + 2$, so $4x = 12$, giving $x = 3$. Substitute: $3 + 2y = 10$, so $2y = 7$ and $y = \frac{7}{2}$. Solution: $(3, \frac{7}{2})$.



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Hi, Progress Maker!

◇ You have done more than complete a set of tests. You have rehearsed the habits that make Grade 8 math feel less surprising. ◇

★ **Remember this:** Progress is not always loud. Sometimes it looks like fewer careless errors, clearer work, better pacing, and more confidence when a problem is unfamiliar. You practiced across 6 full Grade 8 practice tests, and that repeated effort matters. ★

Signs of Growth

- **Clear Work:** Your steps are easier to follow.
- **Better Pacing:** You know when to move on and return.
- **Stronger Checks:** You catch mistakes earlier.
- **Calmer Thinking:** You know what to try next.

Grade 8 test-day tip: Keep one short list of mistakes you often make, then check that list before each practice session.

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

Jay Daie

Your Growth Coach

PRACTICE TODAY. ACHIEVE TOMORROW.

6

Give your child the confidence and skills they need with **6 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 | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
| | ✓ And More! |



6 PRINTED TESTS



2 ONLINE TESTS



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