

New Mexico

NM MSSA

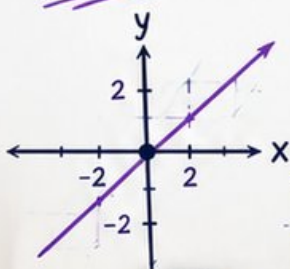
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

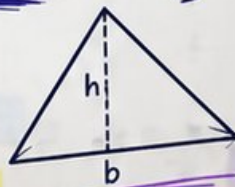
$$y = mx + b$$



**BUILD
CONFIDENCE.
SHARPEN SKILLS.
ACE YOUR
EXAM!**

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



2 ONLINE
TESTS



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

7 New Mexico NM MSSA Grade 8 Math Practice Tests

Seven NM MSSA Rounds Covering Algebra, Geometry, Statistics, and More



Seven 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!

Seven focused rounds for sharper NM MSSA math thinking

This book gives you seven 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 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.

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?

Seven NM MSSA 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.



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& answers

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1) Which set of side lengths forms a right triangle?

☐ A. 7, 10, 12

☐ C. 4, 5, 10

☐ B. 6, 8, 10

☐ D. 1, 2, 4

2) Three stores sell apples. Store A: 3 pounds for \$6. Store B: 5 pounds for \$11. Store C: 2 pounds for \$5. Which store has the lowest unit price?

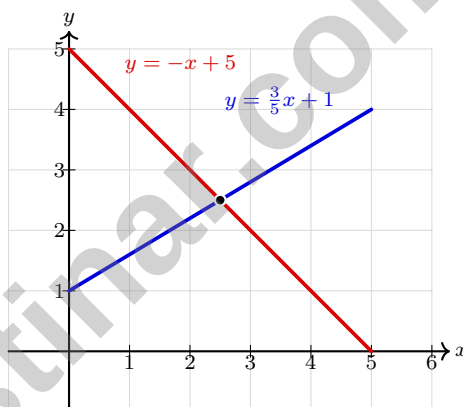
☐ A. Store C (\$2.50 per pound)

☐ C. Store A (\$2 per pound)

☐ B. Store B (\$2.20 per pound)

☐ D. Store A and Store B are the same

3) Look at the coordinate grid. Which system of equations has the solution shown by the intersection point?



☐ A. $y = \frac{3}{5}x + 1$ and $y = -x + 5$

☐ C. $y = \frac{3}{5}x - 1$ and $y = -x + 2$

☐ B. $y = \frac{3}{5}x$ and $y = x + 4$

☐ D. $y = \frac{3}{5}x + 2$ and $y = -x + 5$

4) A function has both a zero and an x -intercept at the same point. Which statement is true?

☐ A. This is impossible; a zero and x -intercept are different

☐ C. They are related but occur at different points

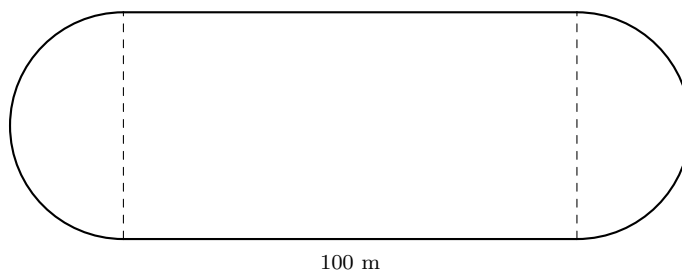
☐ B. They are the same thing; a zero occurs where $f(x) = 0$, which is the x -intercept

☐ D. Only nonlinear functions can have both

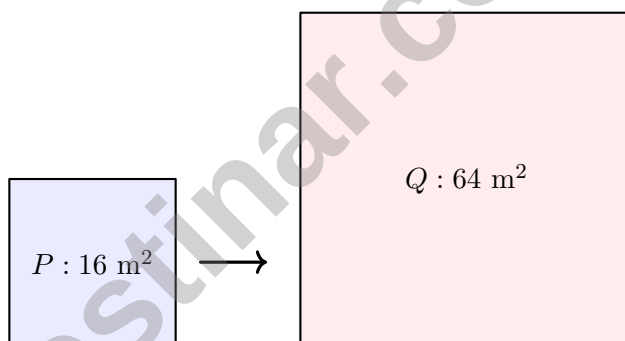


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- 5) A running track is composed of a rectangle (100 m by 50 m) with two semicircles on the short ends (diameter 50 m each). Find the total perimeter of the track.



- ☐ A. 300 m ☐ C. 378.5 m
☐ B. 357 m ☐ D. 400 m
- 6) Figure P has area 16 m^2 and Figure Q (similar to P) has area 64 m^2 . What is the scale factor from P to Q ?

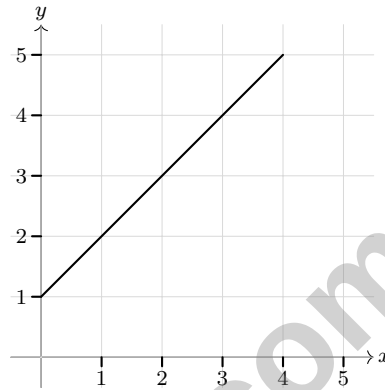


- ☐ A. 2 ☐ C. 8
☐ B. 4 ☐ D. 16
- 7) Is the point $(0, 0)$ on the boundary line of $2x + 3y = 0$?
- ☐ A. Yes ☐ C. Only if $x = 0$
☐ B. No ☐ D. Only if $y = 0$



8) A cone has radius r and height h . If the radius is doubled and the height stays the same, how does the new volume compare to the original?

- ☐ A. New volume = Original ☐ C. New volume = $4 \times$ Original
☐ B. New volume = $2 \times$ Original ☐ D. New volume = $8 \times$ Original



9)

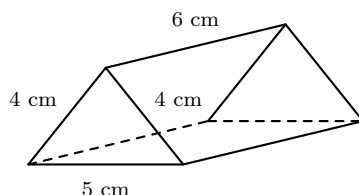
What is the slope of the line shown in the graph?

- ☐ A. $\frac{1}{2}$ ☐ C. 1
☐ B. 2 ☐ D. 4.5

10) The line passes through $(-3, 5)$ and $(1, 13)$. Find the slope of this line.



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1)

A triangular prism has a triangular base with sides 5 cm, 4 cm, and 4 cm. The height (length) of the prism is 6 cm. The height of the triangle is approximately 3.1 cm. What is the total surface area?

☐ A. 72.4 cm^2

☐ C. 96.8 cm^2

☐ B. 84.8 cm^2

☐ D. 93.5 cm^2

2) A scientist says the mass of a virus is 1.5×10^{-20} grams and a bacterium is 5×10^{-15} grams. The bacterium is $\frac{5 \times 10^{-15}}{1.5 \times 10^{-20}} \approx 3.3 \times 10^5$ times more massive. Is this correct?

☐ A. No; the quotient should be about 3.3×10^4 .

☐ C. Yes, the calculation is correct.

☐ B. No; the exponent should be 10^{-35} .

☐ D. No; the exponent should be negative.

3) 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

☐ C. Subtracted in the wrong order in the numerator

☐ B. Forgot to use the slope formula

☐ D. Used the formula $\frac{x_2 - x_1}{y_2 - y_1}$ instead of $\frac{y_2 - y_1}{x_2 - x_1}$


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4) A right triangle has legs of 20 and 21. What is the hypotenuse?

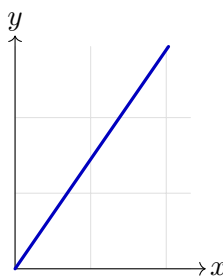
☐ A. 29

☐ C. 400

☐ B. 41

☐ D. 1

5) Which point must be on the graph of $y = 2x$?



☐ A. (1, 2)

☐ C. (2, 1)

☐ B. (1, 3)

☐ D. (0, 2)

6) Solve:
$$\begin{cases} x = 2y + 1 \\ 3x - y = 8 \end{cases}$$

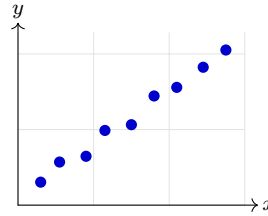
☐ A. (1, 0)

☐ C. (5, 2)

☐ B. (7, 3)

☐ D. (3, 1)





1)

A scatter plot displays the relationship between temperature (in degrees Celsius) and ice cream sales (in dollars) for 12 weeks. The points show a clear upward trend from left to right. Which statement correctly describes the correlation?

- ☐ A. Negative correlation ☐ C. No correlation
☐ B. Positive correlation ☐ D. Random scatter with no pattern

2) In a study of 150 students' sleep habits, 90 sleep at least 8 hours and 60 sleep less. Among those sleeping 8+ hours, 63 report feeling rested. What is the joint frequency (as a fraction) of students sleeping 8+ hours and reporting feeling rested?

- ☐ A. $\frac{63}{150}$ ☐ C. $\frac{90}{150}$
☐ B. $\frac{63}{90}$ ☐ D. $\frac{63}{60}$

3) If you add an outlier to a data set, how will it usually affect the MAD?

- ☐ A. The MAD will become zero ☐ C. The MAD will decrease
☐ B. The MAD will stay the same ☐ D. The MAD will increase

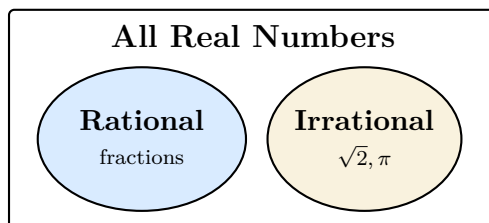
4) Which pair of equations represents lines with the same slope but different y -intercepts?

- ☐ A. $y = 3x + 2$ and $y = 2x + 3$ ☐ C. $y = 4x + 1$ and $y = 4x + 1$
☐ B. $y = -2x + 5$ and $y = -2x - 3$ ☐ D. $y = x + 5$ and $y = 2x + 5$



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Venn Diagram



5)

Which number belongs in the Irrational circle?

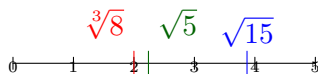
- ☐ A. -4 (negative integer) ☐ C. $\sqrt{23}$ (square root)
☐ B. $\frac{7}{9}$ (fraction) ☐ D. 2.25 (decimal)

6) Convert $0.4\overline{18}$ to a fraction in simplest form.

- ☐ A. $\frac{4}{18}$ ☐ C. $\frac{418}{999}$
☐ B. $\frac{418}{1000}$ ☐ D. $\frac{414}{990} = \frac{23}{55}$

7) Two complementary angles have measures of x and $2x + 6$. Write and solve an equation to find both angle measures.

8)



Which list orders the values from least to greatest?

- ☐ A. $\sqrt{15}, \sqrt{5}, \sqrt[3]{8}$ ☐ C. $\sqrt{5}, \sqrt{15}, \sqrt[3]{8}$
☐ B. $\sqrt{5}, \sqrt[3]{8}, \sqrt{15}$ ☐ D. $\sqrt[3]{8}, \sqrt{5}, \sqrt{15}$



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 B is correct.** (8.G.B.6, 8.G.B.7) Check: $6^2 + 8^2 = 36 + 64 = 100 = 10^2$. This is a scaled 3-4-5 triple (all multiplied by 2).
- 2) **Choice C is correct.** (8.EE.B.5) Store A: $6/3 = 2$ per pound. Store B: $11/5 = 2.20$ per pound. Store C: $5/2 = 2.50$ per pound. Store A is cheapest.
- 3) **Choice A is correct.** (8.EE.C.8a) The graph shows the lines $y = \frac{3}{5}x + 1$ (blue) and $y = -x + 5$ (red) intersecting at $(2.5, 2.5)$.
- 4) **Choice B is correct.** (8.F.B.5) A zero of f is a value of x where $f(x) = 0$. This is exactly where the graph crosses the x -axis (x -intercept). Same point, same concept, two names.
- 5) **Choice B is correct.** (8.G.B.7) Decompose the perimeter: two long sides of rectangle plus two semicircles (which form one complete circle). Long sides: $100 + 100 = 200$ m. Circle circumference: $\pi d = 3.14 \times 50 \approx 157$ m. Total $= 200 + 157 = 357$ m.
- 6) **Choice A is correct.** (8.G.A.4) If area ratio is $\frac{64}{16} = 4$, then the linear scale factor is $\sqrt{4} = 2$.
- 7) **Choice A is correct.** (8.EE.C.8b) Substitute $(0, 0)$: $2(0) + 3(0) = 0$ ✓. The origin is on the line.
- 8) **Choice C is correct.** (8.G.C.9) Original: $V = \frac{1}{3}\pi r^2 h$. New: $V' = \frac{1}{3}\pi (2r)^2 h = \frac{1}{3}\pi \times 4r^2 h = 4V$.
- 9) **Choice C is correct.** (8.SP.A.3) The line passes through $(0, 1)$ and $(4, 5)$. Slope $= \frac{5-1}{4-0} = \frac{4}{4} = 1$.
- 10) **The correct answer is 2.** (8.EE.B.6) Slope $= \frac{13-5}{1-(-3)} = \frac{8}{4} = 2$.
- 11) **Choice A is correct.** (8.G.B.7) $P(\text{black first}) = \frac{6}{10}$; $P(\text{black second} \mid \text{black first}) = \frac{5}{9}$. Product: $\frac{6}{10} \times \frac{5}{9} = \frac{30}{90} = \frac{1}{3}$.
- 12) **Choice B is correct.** (8.F.A.2) From $m(x) = -2x + 5$, slope $m = -2 < 0$ (negative) and y -intercept $b = 5 > 0$ (positive).
- 13) **Choice A is correct.** (8.F.B.4) Initial length is 10 cm (when $w = 0$). Change from 2 to 4 weights: length goes from 14 to 18 cm, a change of 4 cm for 2 weights, so slope is 2. Equation: $L = 2w + 10$.
- 14) **The correct answer is 5.** (8.EE.C.8b) Solve $45 + 5q \geq 70$, giving $q \geq 5$. The minimum whole number is 5.
- 15) **Choice A is correct.** (8.G.A.2) Since triangle XYZ is congruent to triangle UVW, triangle UVW must have sides 5 cm, 7 cm, and 9 cm, not 10 cm. The student made an error by changing one of the side lengths.
- 16) **Choice B is correct.** (8.G.A.3) Reflection across the x -axis maps $(x, y) \rightarrow (x, -y)$. So $(2, 2) \rightarrow (2, -2)$, giving y -coordinate -2 .
- 17) **Choice B is correct.** (8.G.A.5) When parallel lines are cut by a transversal, corresponding angles, alternate interior angles, and alternate exterior angles are all congruent.
- 18) **Choice C is correct.** (8.G.B.8) $d = \sqrt{24^2 + 7^2} = \sqrt{576 + 49} = \sqrt{625} = 25$ units. (This is a 7-24-25 Pythagorean triple.)
- 19) **Choice B is correct.** (8.G.B.7) When corresponding angles are not congruent, the lines are not parallel. Corresponding angles are congruent only when lines are parallel.
- 20) **The correct answer is A,B.** (8.EE.A.4) Division rule: divide coefficients ($6.4 \div 1.6 = 4$, choice A) and subtract exponents ($-3 - (-5) = 2$, choice B). This gives 4×10^2 . Choice C is wrong, choice D incorrectly adds exponents, and choice E has the wrong exponent sign.
- 21) **Choice B is correct.** (8.G.C.9) $V = \frac{1}{3} \times B \times h = \frac{1}{3} \times 9\sqrt{3} \times 8 = 24\sqrt{3} \approx 41.57 \text{ cm}^3$, rounded to $\approx 42 \text{ cm}^3$.
- 22) **Choice A is correct.** (8.G.A.5) For a triangle ($n = 3$): $(3 - 2) \times 180 = 1 \times 180 = 180^\circ$.
- 23) **Choice C is correct.** (8.SP.A.1) Most students show: more TV $\rightarrow$ lower GPA. This student breaks that pattern with high TV but also high GPA, making this point an outlier that deviates from the trend.
- 24) **Choice B is correct.** (8.SP.A.4) Column-conditional frequency among action viewers (156 total): $\frac{72}{156} \approx 0.46$.
- 25) **Choice B is correct.** (8.G.B.8) MAD measures average distance from the mean. Deviations: $|0 - 2| = 2$, $|1 - 2| = 1$ (twice), $|2 - 2| = 0$, $|6 - 2| = 4$. Sum $= 8$. MAD $= 8/5 = 1.6$, showing typical spread.
- 26) **Choice B is correct.** (8.SP.A.2) Shoe size and favorite color have no clear logical or numerical relationship, so we would expect no meaningful correlation.



Hi, Momentum Builder!

◇ Finishing a Grade 8 practice book is not a small thing. It means you practiced persistence, patience, and flexible problem solving. ◇

★ **Remember this:** Some questions were quick. Others probably made you stop and think. Both kinds helped you grow because practice turns effort into confidence. This version gave you 7 opportunities to rehearse test-day habits. ★

Momentum Habits

- **Start Clean:** Write down what the problem gives you.
- **Pick a Tool:** Use a table, model, equation, or graph.
- **Keep Moving:** Skip and return when needed.
- **Review Smart:** Study mistakes without judging yourself.

Grade 8 test-day tip: If a problem feels stuck, change tools. A graph, table, or sketch can make the same idea clearer.

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

Jay Daie

Your Math Momentum Partner

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!

GRADE 8

Practice
Today
Succeed
Tomorrow!

Algebra

Geometry

Statistics

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! |



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