

10

New Mexico

NM MSSA

GRADE

8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10

PRINTED
TESTS



2

ONLINE
TESTS



Build Confidence



Master Key Math Skills

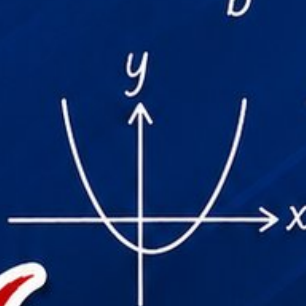
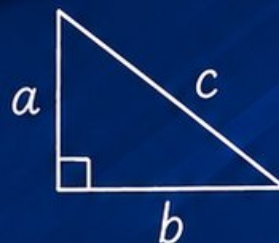


Answer Explanations for
Every Question



Test-Taking Strategies
That Work

$$y = mx + b$$



$$3x - 7 = 2(x + 5)$$
$$x = 17$$



USE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTS

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 New Mexico NM MSSA Grade 8 Math Practice Tests

New Mexico Grade 8 NM MSSA Practice for mesa-clear readiness in functions, scientific notation, real numbers, expressions, geometry, and probability



Ten complete 40-question Grade 8 NM MSSA practice rounds with linear relationships, scientific notation, real numbers, equations, functions, 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!

Ten focused rounds for sharper New Mexico NM MSSA math thinking

This book gives you ten full Grade 8 NM MSSA math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **Fitting a Line to Data** (8.SP.A.2): Know that straight lines are widely used to model relationships between two quantitative variables. Informally fit a straight line for scatter plots that suggest a linear association. A second useful connection is **Volume of Cylinders, Cones, and Spheres** (8.G.C.9): Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

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 ten-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 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.

Grade 8 standards focus: Keep the routine connected to **Personal Financial Literacy** (8.G.B.7): Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. It also prepares you for **Solving Linear Inequalities** (8.EE.C.8b): Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

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?

Ten New Mexico NM MSSA tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final New Mexico round to show growth across the whole book.
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.

Grade 8 standards focus: Use these habits while practicing **Graphing Linear Inequalities in Two Variables** (8.EE.C.8b): Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. Another recurring target is **Surface Area of Prisms, Cylinders, and Pyramids** (8.G.C.9): Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.



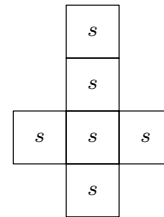
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& answers

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- 1) In a survey of 200 people on movie preferences, 120 prefer comedy. Of those who prefer comedy, 84 are female. What is the relative frequency of females among comedy-lovers?

- ☐ A. 0.42 ☐ C. 0.70
☐ B. 0.60 ☐ D. 0.84



Net of cube

2)

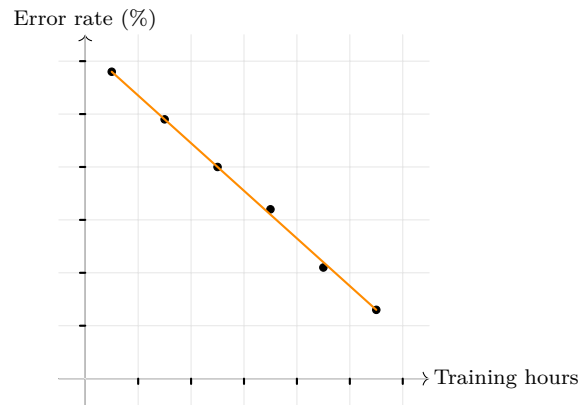
If the net above represents a cube with edge length 3 cm, what is the total surface area of the cube?

- ☐ A. 18 cm^2 ☐ C. 36 cm^2
☐ B. 27 cm^2 ☐ D. 54 cm^2
- 3) A student computed the volume of a cylinder with radius 3 cm and height 8 cm as $V = 3.14 \times 3 \times 8 = 75.36 \text{ cm}^3$. What error did the student make?

- ☐ A. Used diameter instead of radius ☐ C. Used the cone formula by mistake
☐ B. Forgot to square the radius ☐ D. Did not use π correctly



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4)

A training program finds error rate follows $E = -0.9t + 6$, where E is error rate (

- | | |
|---|--|
| ☐ A. Error rate increases as training time increases | ☐ C. Error rate stays constant regardless of training |
| ☐ B. Error rate decreases as training time increases | ☐ D. Training has no effect on errors |

5) Solve for x : $-5x + 12 = -2x - 6$

- | | |
|--------------------------------------|--------------------------------------|
| ☐ A. $x = -6$ | ☐ C. $x = -2$ |
| ☐ B. $x = 2$ | ☐ D. $x = 6$ |

6) Solve:
$$\begin{cases} 5x - 2y = 4 \\ 2x + y = 7 \end{cases}$$

- | | |
|------------------------------------|--------------------------------------|
| ☐ A. (1, 2) | ☐ C. (1.2, 1) |
| ☐ B. (2, 1) | ☐ D. (2, 3) |



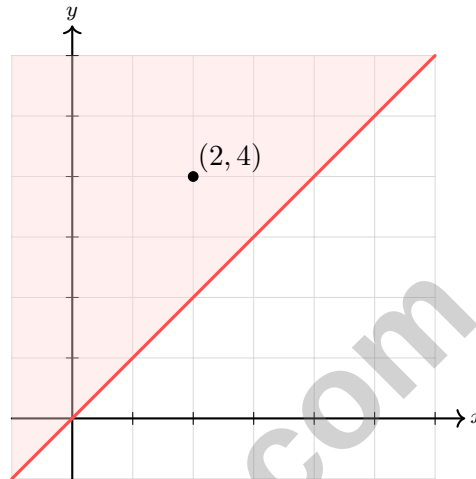
7) Factor $x^2 + 7x + 12$.

☐ A. $(x + 3)(x + 4)$

☐ B. $(x + 2)(x + 6)$

☐ C. $(x + 1)(x + 12)$

☐ D. $(x + 4)(x + 4)$



8)

The test point $(2, 4)$ is marked in the shaded region. Which inequality does this represent?

☐ A. $y > x$

☐ B. $y < x$

☐ C. $y \geq x$

☐ D. $y \leq x$

9) $S(m) = 500 + 25m$ and table $(0, \$600)$, $(3, \$675)$, $(6, \$750)$. Which starts with more money?

m	0	3	6
Table function	\$600	\$675	\$750

☐ A. S

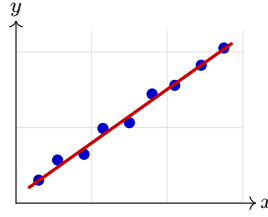
☐ B. Table function

☐ C. Both same.

☐ D. Cannot be determined.



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1)

Which is the BEST description of a “line of best fit” on a scatter plot?

- | | |
|---|---|
| ☐ A. A line that passes through every data point | ☐ C. A line that generally shows the overall trend of the data |
| ☐ B. A line that passes through no data points | ☐ D. A line that only passes through the outliers |
- 2) A segment has length 20 cm and is dilated by a scale factor of 0.4. What is the new length?
- | | |
|-----------------------------------|-----------------------------------|
| ☐ A. 8 cm | ☐ C. 24 cm |
| ☐ B. 20 cm | ☐ D. 50 cm |
- 3) If $f(x) = \frac{x+4}{2}$ and $f(x) = 5$, what is x ?
- | | |
|-------------------------------|--------------------------------|
| ☐ A. 2 | ☐ C. 6 |
| ☐ B. 4 | ☐ D. 10 |
- 4) Which of the following is rational?
- | | |
|---|--|
| ☐ A. π | ☐ C. 0.101001000... (non-repeating) |
| ☐ B. $\sqrt{15}$ | ☐ D. $\sqrt{36}$ |



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5) Which best approximates $\sqrt[3]{50}$?

☐ A. 3.5

☐ C. 4.2

☐ B. 2.9

☐ D. 3.7

6) Which order is correct from smallest to largest?

☐ A. $\sqrt{2}, \sqrt{5}, \sqrt{3}$

☐ C. $\sqrt{3}, \sqrt{2}, \sqrt{5}$

☐ B. $\sqrt{5}, \sqrt{3}, \sqrt{2}$

☐ D. $\sqrt{2}, \sqrt{3}, \sqrt{5}$

7) Which number is equivalent to 6.5×10^{-3} ?

☐ A. 6,500

☐ C. 0.065

☐ B. 65,000

☐ D. 0.0065

0. $\overline{142}$

3-digit repeating block

Denominator: ?

8)

Based on the diagram, what is the denominator when $0.\overline{142}$ is converted?

☐ A. 99

☐ C. 999

☐ B. 142

☐ D. 1000

9) A camping tent is shaped like a triangular prism with a triangular base having a base of 6 feet and height 4 feet. The tent extends 8 feet in length. The two slant edges of the triangular face are each 5 feet. If the tent is completely enclosed (including the floor), what is the total surface area of fabric needed?

☐ A. 88 sq. ft.

☐ C. 128 sq. ft.

☐ B. 112 sq. ft.

☐ D. 152 sq. ft.



1) The decimal expansion of a rational number is:

- ☐ A. Always irrational ☐ C. Always non-terminating
☐ B. Cannot be written as a fraction ☐ D. Either terminating or repeating

2) Function through (1, 2) and (4, 14). y -intercept?

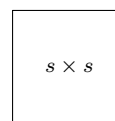
3) A line passes through (0, -3) and (2, 1). What is its slope?

4) A balloon starts at 300 meters and descends at 2 meters per second. What is the slope of the height model?

5) If the volume of a cube is 343 cm^3 , what is the surface area of one face?

One face

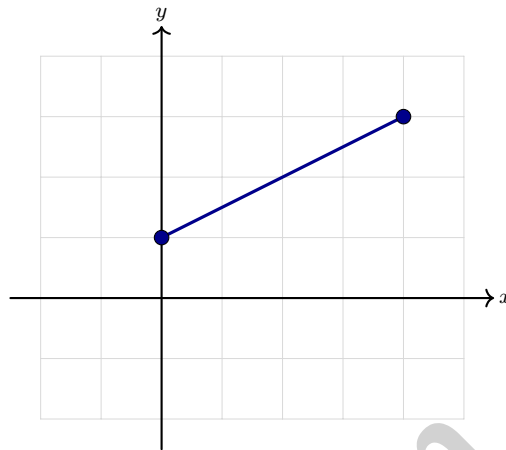
Find s from $s^3 = 343$



- ☐ A. 7 cm^2 ☐ C. 98 cm^2
☐ B. 294 cm^2 ☐ D. 49 cm^2



6) What is the domain of the graphed function?



☐ A. $\{0, 1, 2, 3, 4\}$

☐ B. $[0, 4]$

☐ C. $\{1, 3\}$

☐ D. All real numbers

7) A plane is descending. Its altitude decreases 2000 feet for every 5 minutes. What is the slope of altitude versus time?

☐ A. 400 feet per minute

☐ B. 2000 feet per minute

☐ C. $\frac{5}{2000}$ feet per minute

☐ D. -400 feet per minute

8) A farmer's market charges \$2 for apples and \$3 for oranges. On Saturday, the vendor sold 120 pieces of fruit for \$310. How many apples were sold?

☐ A. 40

☐ B. 60

☐ C. 50

☐ D. 80



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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.SP.A.4) Relative frequency of females among comedy-lovers: $\frac{84}{120} = 0.70$. This is a row-conditional frequency.
- 2) **Choice D is correct.** (8.G.C.9) The net shows all 6 faces of a cube. Each face has area $3^2 = 9 \text{ cm}^2$. Total surface area $= 6 \times 9 = 54 \text{ cm}^2$.
- 3) **Choice B is correct.** (8.G.C.9) Correct formula: $V = \pi r^2 h = 3.14 \times 3^2 \times 8 = 3.14 \times 9 \times 8 = 226.08 \text{ cm}^3$. Student omitted r^2 , computing $\pi r h$ instead.
- 4) **Choice B is correct.** (8.SP.A.3) Negative slope means as one variable increases, the other decreases. More training leads to fewer errors.
- 5) **Choice D is correct.** (8.EE.C.7) Subtract $-2x$ (add $2x$) and subtract 12: $-3x = -18$. Divide by -3 : $x = 6$.
- 6) **Choice D is correct.** (8.EE.C.8a) Check $(2, 3)$: $5(2) - 2(3) = 10 - 6 = 4$ and $2(2) + 3 = 7$. So the solution is $(2, 3)$.
- 7) **Choice A is correct.** (8.EE.C.7) Find two numbers that multiply to 12 and add to 7: 3 and 4. So $x^2 + 7x + 12 = (x + 3)(x + 4)$.
- 8) **Choice C is correct.** (8.EE.C.8b) At $(2, 4)$: $4 \geq 2$ is TRUE. The SOLID line shows $\geq$. Shading ABOVE the line confirms $y \geq x$.
- 9) **Choice B is correct.** (8.F.A.2) $S(0) = 500$. Table shows 600 at $m = 0$. Since $600 > 500$, table function starts higher.
- 10) **Choice B is correct.** (8.F.A.3) A nonlinear function's graph is curved, not straight. This curve shows accelerating growth, typical of a nonlinear relationship.
- 11) **Choice B is correct.** (8.F.B.4) Option B: from $x = 1$ to $x = 2$, y increases by 3; from $x = 2$ to $x = 3$, y increases by 5. Not constant slope, so not linear. All others have constant slope.
- 12) **Choice A is correct.** (8.F.B.5) The graph rises from $(0, 2)$ to $(4, 5)$, then falls from $(4, 5)$ to $(6, 1)$. Its greatest y -value is 5, and the y -intercept is 2, so choice A is the only correct set.
- 13) **Choice B is correct.** (8.G.A.2) Since the triangles are congruent, all corresponding sides and angles are equal. Both have a right angle and the same three side lengths.
- 14) **Choice A is correct.** (8.G.A.3) A 180° rotation about the origin uses the rule $(x, y) \rightarrow (-x, -y)$. So $(-5, 3) \rightarrow (5, -3)$.
- 15) **Choice B is correct.** (8.G.B.6, 8.G.B.7) Rearranging $a^2 + b^2 = c^2$: $8^2 + b^2 = 17^2$ gives $64 + b^2 = 289$, so $b^2 = 225$ and $b = 15$ (the 8-15-17 triple).
- 16) **Choice B is correct.** (8.G.B.8) Distance $= \sqrt{(3-0)^2 + (4-0)^2} = \sqrt{9+16} = \sqrt{25} = 5$ miles. (This is a 3-4-5 Pythagorean triple.)
- 17) **Choice C is correct.** (8.G.C.9) When linear scale is $k = \frac{3}{2}$, volume scales by $k^3 = \left(\frac{3}{2}\right)^3 = \frac{27}{8}$.
- 18) **The correct answer is 5.7.** (8.NS.A.2) $\sqrt{32} = 4\sqrt{2} \approx 4 \times 1.41 = 5.66 \approx 5.7$ meters.
- 19) **Choice C is correct.** (8.G.A.5) The sum for a nonagon is $(9-2) \times 180 = 1260^\circ$. Each angle is $\frac{1260}{9} = 140^\circ$.
- 20) **Choice B is correct.** (8.EE.C.7b) First prize: 20 ticket choices. Second prize: 19 remaining tickets. Total: $20 \times 19 = 380$.
- 21) **The correct answer is 7.** (8.EE.A.1) Using the product rule, $a + 5 = 12$, so $a = 7$. Verification: $3^7 \cdot 3^5 = 3^{12}$.
- 22) **The correct answer is A, C.** (8.G.B.8) A is correct: MAD is the average absolute deviation from the mean. C is correct: it restates this in slightly different language. B is incorrect: MAD is not about range. D is incorrect: MAD is the mean, not median, of deviations. E is incorrect: MAD is symmetric around the mean regardless of median position.
- 23) **Choice D is correct.** (8.EE.A.2) $5 \times 5 \times 5 = 125$, so $\sqrt[3]{125} = 5$.
- 24) **Choice B is correct.** (8.F.A.1) The vertical line test states that a graph is a function if no vertical line intersects it more than once. Options A and D are vertical lines, so they fail. Option C is a circle and fails at multiple points. Option B, a parabola, is a function.
- 25) **Choice B is correct.** (8.G.A.5) Let $B = x$. Then $A = 2x$ and $C = x + 20$. The angles sum to 180° : $2x + x + (x + 20) = 180$, so $4x = 160$ and $x = 40$. Therefore $A = 2x = 80^\circ$.
- 26) **Choice C is correct.** (8.G.B.7) Co-interior angles sum to 180° : $(m - 15) + (m + 35) = 180 \Rightarrow 2m + 20 = 180 \Rightarrow 2m = 160 \Rightarrow m = 80^\circ$.



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Hi, Number Sense Builder!

◇ Grade 8 mathematics connects numbers, algebra, geometry, and data. It helps you model linear change, compare functions, estimate irrational values, measure distance, and explain patterns. ◇

★ **Remember this:** You practiced listening to that story. When the answer makes sense in the situation, your math becomes much stronger. This version gave you 10 opportunities to rehearse test-day habits. ★

Number Sense Checks

- **Too Big?:** Compare with an estimate.
- **Too Small?:** Use the context to judge.
- **Right Sign?:** Positive and negative values matter.
- **Right Unit?:** A number needs meaning.

Grade 8 test-day tip: Before choosing an answer, ask whether it fits the story of the problem.

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

Jay Daie

Your Number-Sense Friend

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 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:

10

Full-Length
Printed Tests

2

Online
Practice Tests



Detailed Answers
& 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



**Build
Confidence**

Practice regularly to feel prepared and test-ready.



**Master
Key Skills**

Develop strong math skills and problem solving abilities.



**Improve
Understanding**

Learn with clear explanations and step-by-step solutions.



**Test
Strategies**

Learn proven strategies to approach every question with confidence.



**Boost
Performance**

Apply your knowledge and achieve your best score!

TOPICS COVERED

- | | |
|---------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Data Analysis |
| ✓ Inequalities | ✓ Measurement |
| ✓ Functions | ✓ Pythagorean Theorem |
| ✓ Geometry | ✓ Surface Area & Volume |
| ✓ Ratios & Proportions | ✓ 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!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY