

NEW JERSEY NJSLA

GRADE 8 MATH

PRACTICE TESTS

5

PRINTED
TESTS



2

 ONLINE
TESTS

**Standards Aligned
Problem Solving For
Comprehensive Assessment Programs**



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



$$a^2 + b^2 = c^2$$



5 New Jersey NJSLA Grade 8 Math Practice Tests

Five NJSLA Tests for Reasoning, Models, and Geometry



Five complete 40-question Grade 8 NJSLA 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 Jersey Grade 8 Problem Solver!

Five focused rounds for sharper NJSLA math thinking

This book gives you five full Grade 8 NJSLA 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 Jersey 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 five-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 Jersey 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?

Five NJSLA tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–5	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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& answers

Table of Contents

★ Practice Test 1	_____	15
★ Practice Test 2	_____	33
★ Practice Test 3	_____	49
★ Practice Test 4	_____	67
★ Practice Test 5	_____	84
Practice Test Answer Keys	_____	102
Practice Test Answers and Explanations	_____	106

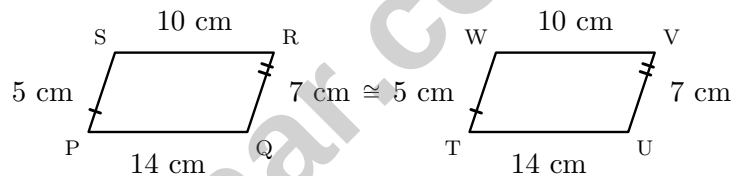
1) Which scenario describes a negative slope?

- ☐ A. Population increases each year ☐ C. Your bank account grows with deposits
☐ B. Temperature increases over time ☐ D. Water drains from a tank over time

2) Simplify $\frac{20x^9}{5x^3}$.

- ☐ A. x^6 ☐ C. $15x^6$
☐ B. $4x^{12}$ ☐ D. $4x^6$

3) Trapezoid PQRS is congruent to trapezoid TUVW. If the parallel sides of PQRS are 10 cm and 14 cm, and the non-parallel sides are 5 cm and 7 cm, what is the perimeter of TUVW?



- ☐ A. 18 cm ☐ C. 36 cm
☐ B. 24 cm ☐ D. 72 cm

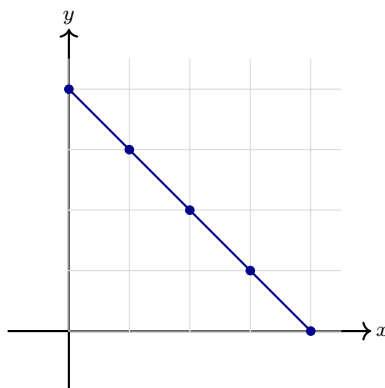
4) A coffee shop has fixed costs of \$400 per day and variable costs of \$2 per cup sold. If cups sell for \$5 each, about how many cups must be sold to break even?

- ☐ A. 100 cups ☐ C. 134 cups
☐ B. 120 cups ☐ D. 160 cups

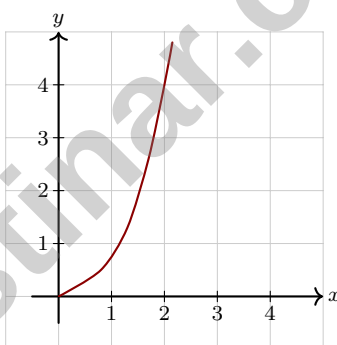


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5) The graph shows function $r(x)$. What is $r(0)$?

☐ A. 0☐ C. 4☐ B. 2☐ D. 1

6) Which graph represents a NONLINEAR function?

☐ A. Yes, the curve is parabolic☐ C. Yes, it only has positive y -values☐ B. No, it starts at the origin☐ D. No, the points are integers

7) An electrician charges \$50 for a service call and \$35 per hour. A customer's bill comes to \$225. How many hours did the electrician work?

☐ A. 4 hours

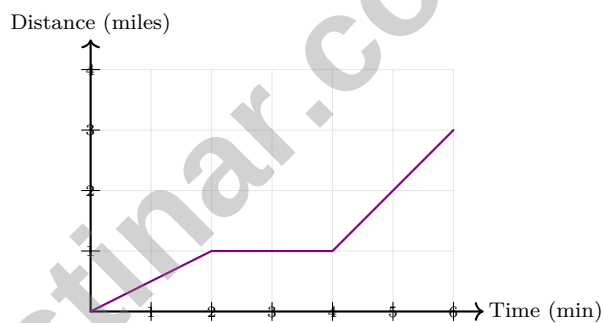
☐ C. 6 hours

☐ B. 5 hours

☐ D. 7 hours

8) Solve the system $\begin{cases} y = 2x \\ x + y = 9 \end{cases}$ by substitution.

9)



A runner travels 1 mile in 2 minutes, stops for 2 minutes, then runs 2 more miles in 2 minutes. What is the average speed over the whole journey?

☐ A. 0.75 miles/min

☐ C. 1 mile/min

☐ B. 0.5 miles/min

☐ D. 1.5 miles/min



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- 1) A gym offers two membership plans. Plan A costs \$50 upfront plus \$10 per month. Plan B costs \$20 per month with no upfront fee. After how many months do the total costs equal?

- ☐ A. 3 months ☐ C. 5 months
☐ B. 4 months ☐ D. 6 months

- 2) The area of a square is $A = s^2$. If you square the side length, what is the area of the new square in terms of s ?

- ☐ A. s^2 ☐ C. $(s^2)^2 = s^4$
☐ B. s^3 ☐ D. $2s^2$

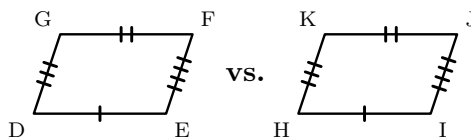
- 3) Table 1: $(0, 1), (2, 5), (4, 9)$. Table 2: $(0, -2), (1, -1), (2, 0)$. Which table represents a function with steeper rate of change?

x	0	2	4
Table 1	1	5	9

x	0	1	2
Table 2	-2	-1	0

- ☐ A. Table 1 ☐ C. Both have same rate.
☐ B. Table 2 ☐ D. Cannot be determined.

- 4) Quadrilateral DEFG is congruent to quadrilateral HIJK. A student wrote $DEFG \cong IJKH$. Which error did the student make?



- ☐ A. $DEFG \cong HIJK$ (correct order) ☐ C. $DEFG \cong KJHI$ (wrong order)
☐ B. $DEFG \cong IJKH$ (wrong vertex order) ☐ D. $DEFG \cong IHKJ$ (completely wrong order)



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- 5) A rope's length decreases at a constant rate. After 10 hours, it is 40 meters long. After 30 hours, it is 20 meters long. At what hour will the rope be 0 meters?

- ☐ A. 40 hours ☐ C. 60 hours
☐ B. 70 hours ☐ D. 50 hours

- 6) 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

- 7) A square park has an area of 169 square yards. What is the length of one side of the park?

- 8) Which ordered pair is a solution to both equations?

- $y = -2x + 5$
- $3x + y = 6$

- ☐ A. (1, 3) ☐ C. (0, 4)
☐ B. (2, 1) ☐ D. (-1, 7)



1) What is $0.\overline{3}$ as a fraction?

☐ A. $\frac{1}{10}$
☐ B. $\frac{3}{10}$

☐ C. $\frac{3}{99}$
☐ D. $\frac{3}{9} = \frac{1}{3}$

2) What is the error in this work: $\sqrt[3]{100} = 10$?

☐ A. $10^3 = 100$
☐ B. $10^2 = 1000$

☐ C. $10^3 = 1000$, not 100
☐ D. $\sqrt[3]{100} = 100^3$

3) What is $(-2)^4$?

☐ A. -16
☐ B. 8

☐ C. -8
☐ D. 16

4) Explain why 10^5 is 100 times greater than 10^3 . Use exponents in your reasoning.

5) A bike travels at 12 miles per hour. The equation is $d = 12t$, where d is distance in miles and t is time in hours. How far does the bike travel in 3.5 hours?

☐ A. 30 miles
☐ B. 36 miles

☐ C. 42 miles
☐ D. 48 miles

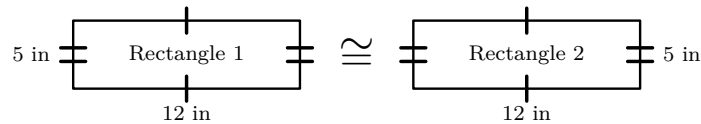
6) $S_1(w) = 20w$ and S_2 at $(0, 50)$, $(1, 56)$. After 4 weeks, which has more?

☐ A. S_1
☐ B. S_2

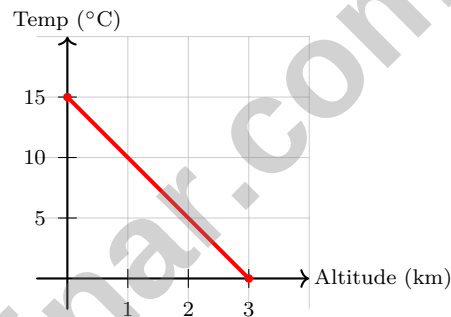
☐ C. Both same.
☐ D. Cannot be determined.



- 7) Two congruent rectangles are shown. Rectangle 1 has a length of 12 inches and a width of 5 inches. What is the perimeter of Rectangle 2?



- ☐ A. 17 inches
☐ B. 24 inches
☐ C. 34 inches
☐ D. 60 inches
- 8) A graph shows temperature (in $^{\circ}\text{C}$) versus altitude (in km). The line passes through (0, 15) and (3, 0).



What is the slope?

- ☐ A. -5°C per km
☐ B. 5°C per km
☐ C. $-\frac{1}{5}^{\circ}\text{C}$ per km
☐ D. 3°C per km
- 9) In 6 years, a father will be three times as old as his son. Right now, the father is 30 years older than his son. How old is the son now?

- ☐ A. 9
☐ B. 12
☐ C. 15
☐ D. 18



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New Jersey NJSLA 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 Jersey NJSLA 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.5)** Negative slope means as x increases, y decreases. Water draining means the amount in the tank decreases over time. All other options describe increasing quantities.
- 2) **Choice D is correct.** **(8.EE.A.1)** Simplify coefficients: $\frac{20}{5} = 4$. Simplify variables: $\frac{x^9}{x^3} = x^6$. Result: $4x^6$.
- 3) **Choice C is correct.** **(8.G.A.2)** Perimeter of PQRS = $10 + 14 + 5 + 7 = 36$ cm. Since TUVW is congruent to PQRS, its perimeter is also 36 cm.
- 4) **Choice C is correct.** **(8.G.C)** Let n = cups sold. Cost is $400 + 2n$ and revenue is $5n$. Break-even occurs when $5n = 400 + 2n$, so $3n = 400$ and $n = 133\frac{1}{3}$. The shop must sell about 134 cups to cover the cost.
- 5) **Choice C is correct.** **(8.F.A.1)** At $x = 0$, the point on the graph is at height $y = 4$. Therefore, $r(0) = 4$.
- 6) **Choice A is correct.** **(8.F.A.3)** A nonlinear function does not form a straight line. This graph shows a parabola (curved shape), characteristic of a quadratic or nonlinear function.
- 7) **Choice B is correct.** **(8.F.B.4)** Equation: $C = 35h + 50$. Set $C = 225$: $225 = 35h + 50 \Rightarrow 175 = 35h \Rightarrow h = 5$ hours.
- 8) **The correct answer is (3, 6).** **(8.EE.C)** Substitute $y = 2x$ into $x + y = 9$: $x + 2x = 9$, so $3x = 9$, giving $x = 3$. Then $y = 2(3) = 6$.
- 9) **Choice B is correct.** **(8.F.B.5)** Total distance = 3 miles. Total time = 6 minutes. Average speed = $3 \div 6 = 0.5$ miles/min. The flat segment adds time but no distance.
- 10) **Choice A is correct.** **(8.G.A.3)** Checking: $(1, 2) \rightarrow (-1, -2)$, $(3, 2) \rightarrow (-3, -2)$, $(2, 4) \rightarrow (-2, -4)$. All points follow the rule $(x, y) \rightarrow (-x, -y)$, confirming 180° rotation.
- 11) **Choice B is correct.** **(8.G.A.5)** Corresponding angles are congruent: $9t - 15 = 4t + 10 \Rightarrow 5t = 25 \Rightarrow t = 5$.
- 12) **Choice B is correct.** **(8.G.B.6, 8.G.B.7)** From $13^2 + b^2 = 85^2$, we get $169 + b^2 = 7225$, so $b^2 = 7056$ and $b = 84$ (scaled 5-12-13 triple).
- 13) **Choice B is correct.** **(8.EE.A.1)** Let the smaller angle be x . Then $x + (x + 18) = 90$, so $2x + 18 = 90$, giving $x = 36^\circ$.
- 14) **Choice B is correct.** **(8.G.C.9)** For a right triangle, base area is $\frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2$ (not 48 cm^2). Correct volume: $V = \frac{1}{3} \times 24 \times 10 = 80 \text{ cm}^3$.
- 15) **Choice C is correct.** **(8.G.C.9)** Two semicircles form one complete circle. Area = $\pi r^2 = 3.14 \times 3^2 = 28.26 \text{ m}^2$.
- 16) **Choice B is correct.** **(8.G.B.7)** Sum of angles in a pentagon is 540° . Sum of known: $98 + 115 + 120 + 110 = 443^\circ$. Fifth angle: $540 - 443 = 97^\circ$.
- 17) **Choice A is correct.** **(8.SP.A.1)** Outliers in health data can indicate genuine health risks or data recording errors. Ignoring (B) or removing (C) the outlier without investigation risks missing important health concerns. The outlier should prompt further examination.
- 18) **Choice B is correct.** **(8.SP.A.4)** Uninsured full-time = $144 - 108 = 36$. Relative frequency among full-time only: $\frac{36}{144} = \frac{1}{4} = 0.25$. This is row-conditional.
- 19) **Choice B is correct.** **(8.G.B.8)** Mean = 6. Absolute deviations: $|2 - 6| = 4$, $|4 - 6| = 2$, $|6 - 6| = 0$, $|8 - 6| = 2$, $|10 - 6| = 4$. Sum = 12. MAD = $12/5 = 2.4$.
- 20) **The correct answer is (3, 4).** **(8.EE.C.7)** The integers 3 and 4 multiply to 12 and add to 7.
- 21) **The correct answer is A,D.** **(8.EE.B.5)** The line goes through $(0, 0)$ and $(8, 4)$, so the slope and constant of proportionality are $\frac{4}{8} = 0.5$. A point on the line must have $y = 0.5x$; when $x = 6$, $y = 3$, so $(6, 3)$ is on the line.
- 22) **Choice D is correct.** **(8.G.C.9)** $P(\text{not } 7) = 1 - P(7) = 1 - \frac{1}{12} = \frac{11}{12}$.
- 23) **Choice B is correct.** **(8.NS.A.2)** The student confused independent choices. Each of the 5 A-to-B routes pairs with each of the 3 B-to-C routes, giving $5 \times 3 = 15$ total routes, not $5 + 3 = 8$.
- 24) **Choice B is correct.** **(8.G.B.8)** $10^2 = 6^2 + b^2$, so $100 = 36 + b^2$, thus $b^2 = 64$ and $b = 8$ units.
- 25) **Choice D is correct.** **(8.SP.A.2)** A negative slope means the line tilts downward from left to right. This represents a negative association: as one variable increases, the other tends to decrease.
- 26) **Choice A is correct.** **(8.G.A.4)** Scale factor from ABC to DEF is $\frac{8}{4} = 2$. The corresponding side is $5 \times 2 = 10$ cm.



Hi, Persistent Problem Solver!

◇ Some Grade 8 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 8 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 8 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

Practice Today. Succeed Tomorrow!

Give your child the confidence and skills they need with **5 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 |
| ✓ Measurement & Data | ✓ And More! |

5
PRINTED
TESTS



2 ONLINE
TESTS



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