

9

New Jersey

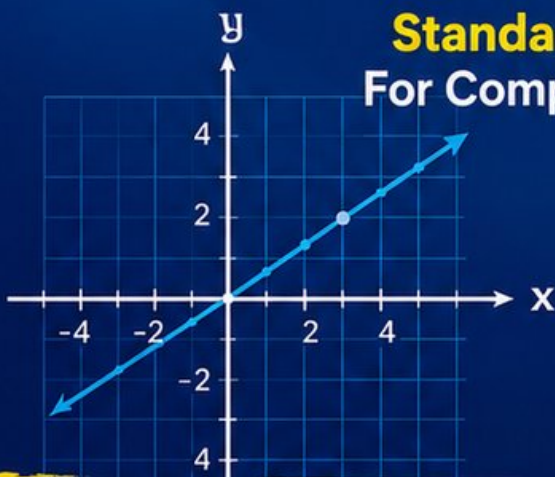
NJSLA

Grade 8

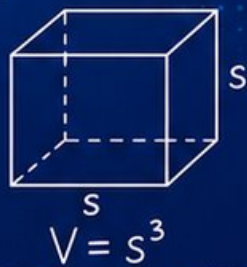
MATH

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 Jersey NJSLA Grade 8 Math Practice Tests

New Jersey Grade 8 Review for Linear Thinking, Geometry, Probability, and Statistics



Nine 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!

Nine focused rounds for sharper NJSLA math thinking

This book gives you nine 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 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 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?

Nine NJSLA 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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1) Consider a regular heptagon (7-sided polygon). Which is closest to the measure of each interior angle?

☐ A. $\approx 147^\circ$

☐ C. $\approx 138^\circ$

☐ B. $\approx 120^\circ$

☐ D. $\approx 129^\circ$

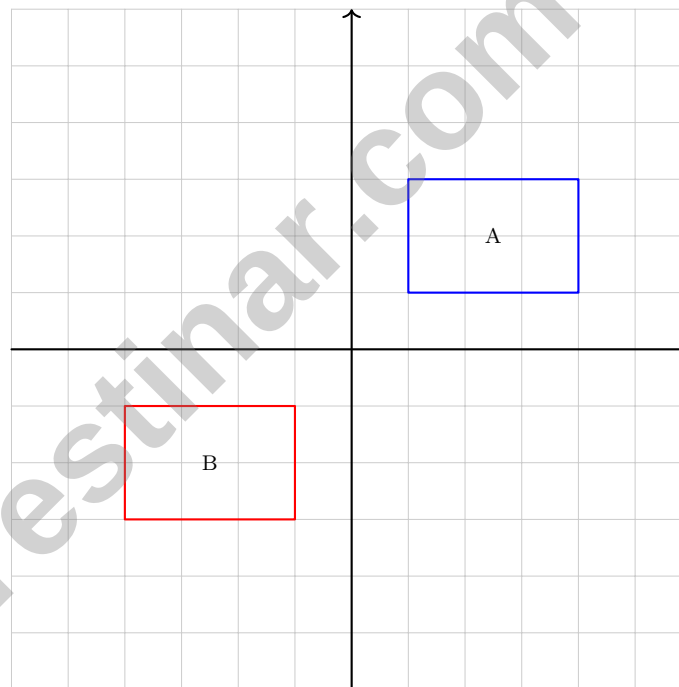
2) A scientist measures a cell with diameter 5.3×10^{-6} mm. Convert this to standard form.

☐ A. 5,300 mm

☐ C. 5.3 mm

☐ B. 0.0053 mm

☐ D. 0.0000053 mm



3)

Figure A is transformed to Figure B. Which single transformation is shown?

☐ A. Reflection across the x -axis only

☐ C. 180° rotation about the origin

☐ B. Reflection across the y -axis only

☐ D. Dilation by scale factor 2



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4) A payday loan charges \$15 for every \$100 borrowed for 2 weeks. What is the APR equivalent?

☐ A. 15%

☐ B. 30%

☐ C. 390%

☐ D. 780%

5) What is $\sqrt[3]{1728}$?

☐ A. 10

☐ B. 11

☐ C. 12

☐ D. 13

6) A farmer plants rows of corn. Each row contains 20 plants. The relationship between rows (x) and total plants (y) is proportional. How many plants are in 8 rows?

☐ A. 120 plants

☐ B. 140 plants

☐ C. 160 plants

☐ D. 180 plants

7) What is the y -intercept of $y = -\frac{1}{2}x + 4$?

☐ A. $-\frac{1}{2}$

☐ B. $\frac{1}{2}$

☐ C. -4

☐ D. 4

8) Solve for x : $8x - 12 = 4x + 8$

☐ A. $x = 5$

☐ B. $x = 2$

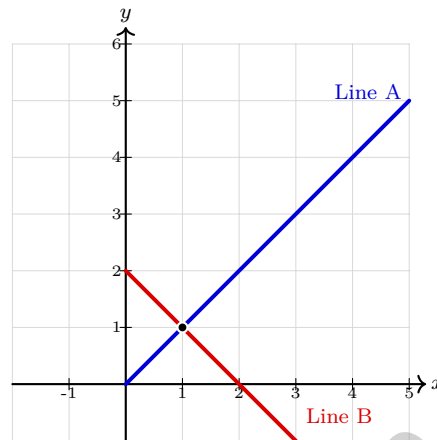
☐ C. $x = 4$

☐ D. $x = 1$

9) The line of best fit for a dataset is $y = -3x + 48$. At what value of x is y equal to 12?



10) Use the graph below to solve the system.



☐ A. $(0, 0)$

☐ C. $(1, 1)$

☐ B. $(2, 2)$

☐ D. $(3, 3)$

11) Which of the following satisfies $2x - 3 < 5$?

☐ A. $x = 5$

☐ C. $x = 3$

☐ B. $x = 10$

☐ D. $x = 8$

12) Expand $(2x - 5)(3x - 2)$.

☐ A. $5x^2 - 19x + 10$

☐ C. $6x^2 - 4x - 15x - 10$

☐ B. $6x^2 - 10$

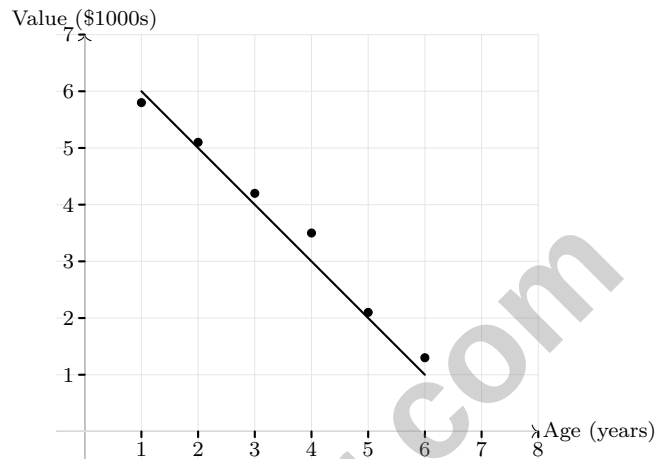
☐ D. $6x^2 - 19x + 10$



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- 1) The distance from Earth to the Sun is approximately 1.496×10^8 km. What is this distance in standard form?

- ☐ A. 149,600 km ☐ C. 149,600,000 km
☐ B. 1,496,000 km ☐ D. 1,496,000,000 km



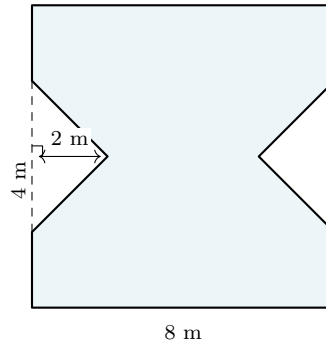
2)

A scatter plot shows vehicle age vs. value. Which best describes the relationship?

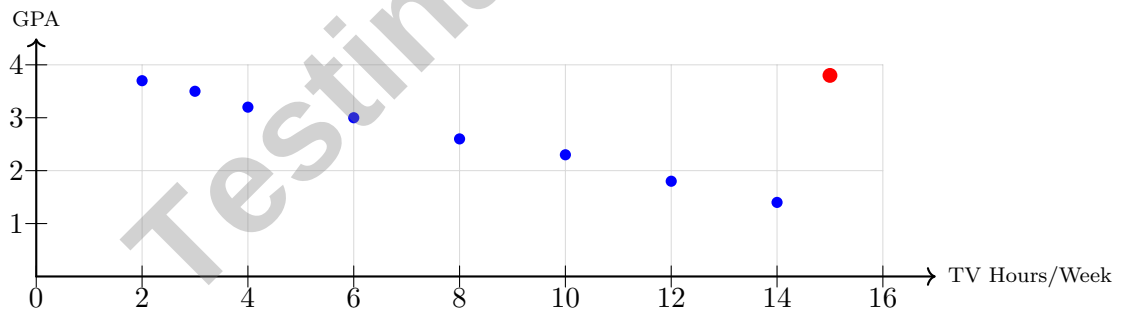
- ☐ A. Positive linear relationship ☐ C. No relationship
☐ B. Negative linear relationship ☐ D. Exponential growth
- 3) A square prism and a square pyramid have the same base side length (5 cm) and height (15 cm). How many times larger is the prism's volume than the pyramid's?
- ☐ A. 1.5 times ☐ C. 3 times
☐ B. 2 times ☐ D. 5 times



- 4) A composite figure has a square (8 m by 8 m) with two opposite triangular notches cut out (each 4 m base, 2 m height). What is the remaining area?



- ☐ A. 56 m^2
☐ C. 64 m^2
- ☐ B. 60 m^2
☐ D. 72 m^2
- 5) A scatter plot displays student GPA versus hours watched TV per week. Most students show a pattern: those who watch more TV have lower GPAs. A student with a GPA of 3.8 watches 15 hours of TV per week, while similar high watchers have GPAs around 1.4–2.0. Is this student an outlier?

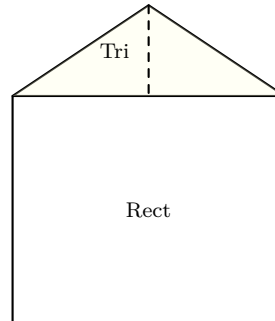


- ☐ A. No, the GPA is typical for high TV watchers
 ☐ C. Yes, it deviates from the expected negative pattern
- ☐ B. No, GPA is unrelated to TV time
 ☐ D. No, all points above GPA 3.0 are outliers



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- 1) A composite figure consists of a rectangle (6 m by 5 m) with a triangle on top (base 6 m, height 2 m). Find the total area.

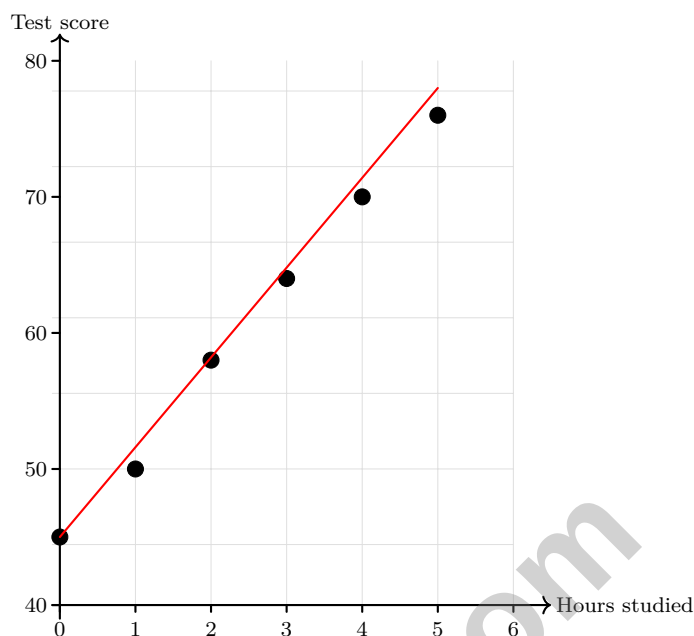


- ☐ A. 30 m^2 ☐ C. 39 m^2
☐ B. 36 m^2 ☐ D. 42 m^2
- 2) A gift box shaped like a rectangular prism has dimensions 12 inches $\times$ 8 inches $\times$ 5 inches. If wrapping paper covers the entire box, how much paper (in square inches) is needed?

- ☐ A. 296 in^2 ☐ C. 480 in^2
☐ B. 392 in^2 ☐ D. 592 in^2



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3)

The scatter plot shows test scores vs. hours studied with a best-fit line. Approximately what test score is predicted for 2.5 hours?

☐ A. 58☐ C. 64☐ B. 61☐ D. 704) Divide: $\frac{8 \times 10^8}{2 \times 10^3}$ ☐ A. 10×10^5 ☐ C. 4×10^{11} ☐ B. 6×10^5 ☐ D. 4×10^5 5) Solve $2x - 5 \geq 7$. What is the boundary value?

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.G.B.7) The sum for a heptagon is $(7 - 2) \times 180 = 900^\circ$. Each angle is $\frac{900}{7} = 128.57\dots^\circ$, which rounds to $\approx 129^\circ$.
- 2) **Choice D is correct.** (8.EE.A.3) Move the decimal 6 places left: $5.3 \times 10^{-6} = 0.0000053$ mm.
- 3) **Choice C is correct.** (8.G.A.1) A 180° rotation maps each point (x, y) to $(-x, -y)$, which sends Figure A directly onto Figure B. The size is unchanged, so no dilation is involved.
- 4) **Choice C is correct.** (8.EE.B.5) Rate per 2 weeks: $\$15 / \$100 = 15\%$ per 2 weeks. There are $52 \text{ weeks} / 2 = 26$ two-week periods in a year. APR: $0.15 \times 26 = 3.9 = 390\%$.
- 5) **Choice C is correct.** (8.EE.A.2) $12 \times 12 \times 12 = 1728$, so $\sqrt[3]{1728} = 12$.
- 6) **Choice C is correct.** (8.EE.B.5) Equation: $y = 20x$. For $x = 8$: $y = 20(8) = 160$ plants.
- 7) **Choice D is correct.** (8.EE.B.6) The y -intercept is the constant term b in $y = mx + b$, which is 4.
- 8) **Choice A is correct.** (8.EE.C.7) Subtract $4x$ and add 12: $4x = 20$. Divide by 4: $x = 5$.
- 9) **The correct answer is 12.** (8.SP.A.3) Set $y = 12$: $12 = -3x + 48 \Rightarrow -3x = -36 \Rightarrow x = 12$.
- 10) **Choice C is correct.** (8.EE.C) The two lines intersect at the marked point, which is $(1, 1)$.
- 11) **Choice C is correct.** (8.EE.C.7) Solving $2x - 3 < 5$ gives $2x < 8$, so $x < 4$. Of the listed choices, only $x = 3$ satisfies the inequality.
- 12) **Choice D is correct.** (8.EE.C.7) FOIL: $(2x - 5)(3x - 2) = 6x^2 - 4x - 15x + 10 = 6x^2 - 19x + 10$.
- 13) **Choice B is correct.** (8.G.B.8) The solid line (boundary included) with shading ABOVE indicates $y \geq x + 1$. Verify: $(3, 5)$ gives $5 \geq 3 + 1 = 4$ ✓ TRUE.
- 14) **Choice B is correct.** (8.F.A.1) Domain is the set of all input (x) values: $-2, 0, 2, 4$. Range is the set of all output (y) values: $0, 4$.
- 15) **Choice B is correct.** (8.F.A.2) Slope of p : -1 . Slope of q : -1.5 . Since $-1.5 < -1$, function q is more negative.
- 16) **Choice B is correct.** (8.F.A.3) The y -differences are $16 - 10 = 6$, $22 - 16 = 6$, $28 - 22 = 6$. Since x changes by 2 each time, the rate of change is $\frac{6}{2} = 3$, constant and linear.
- 17) **Choice A is correct.** (8.F.B.4) Slope is $m = \frac{10-2}{4-0} = \frac{8}{4} = 2$.
- 18) **Choice A is correct.** (8.F.B.5) The elevator goes down (negative slope), pauses (flat line), then up (positive slope). This is a piecewise linear function with three distinct segments.
- 19) **Choice A is correct.** (8.G.A.2) Subtract 6 from the x -coordinate and add 8 to the y -coordinate: $(3-6, -2+8) = (-3, 6)$.
- 20) **The correct answer is A,B.** (8.G.B.6, 8.G.B.7) A: $3^2 + 4^2 = 9 + 16 = 25 = 5^2$ ✓. B: $5^2 + 12^2 = 25 + 144 = 169 = 13^2$ ✓. C: $36 + 49 = 85 \neq 64$. D: $49 + 576 = 625 \neq 676$. E: $64 + 100 = 164 \neq 144$.
- 21) **Choice C is correct.** (8.G.A.5) $180 - 29 - 71 = 80^\circ$.
- 22) **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, $\sqrt{50} \approx 7.1$.
- 23) **Choice D is correct.** (8.EE.A.1) $(k^2)^3 = k^6$; then $k^6 \cdot k^{-1} = k^5$; then $\frac{k^5}{k^5} = k^0 = 1$.
- 24) **Choice C is correct.** (8.EE.A.4) Volume = (side)³ = $(1.5 \times 10^{-2})^3 = (1.5)^3 \times (10^{-2})^3 = 3.375 \times 10^{-6} \text{ m}^3$.
- 25) **Choice A is correct.** (8.G.A.3) Reflection across $y = x$ swaps coordinates: $(x, y) \rightarrow (y, x)$. So $(-3, 2) \rightarrow (2, -3)$.
- 26) **Choice A is correct.** (8.G.B.8) Distance = $\sqrt{(4-1)^2 + (6-2)^2} = \sqrt{9+16} = \sqrt{25} = 5$.
- 27) **Choice D is correct.** (8.SP.A.2) The data shows steep growth early, flattening near age 15–16. This reflects human biology: rapid growth during childhood and early teens, then plateauing as growth ends in adulthood.
- 28) **The correct answer is 9.4.** (8.NS.A.2) The side length is $\sqrt{88}$. Since $9^2 = 81$ and $10^2 = 100$, and 88 is closer to 81, we estimate $\sqrt{88} \approx 9.38 \approx 9.4$.
- 29) **Choice D is correct.** (8.EE.B.5) The slope is the rate of change of revenue per item, which is \$15 per item. The \$200 is the y -intercept, not the slope.



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One Last Encouragement

Hi, Determined Student!

◇ You did meaningful Grade 8 practice. That matters because confidence is built through action, not waiting until everything feels easy. This high-stamina book gave you nine substantial Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Carry this with you: you can learn hard things by breaking them into steps, asking good questions, and reviewing with honesty. ★

Take This With You

- **You Can Start:** Even when the problem looks big.
- **You Can Adjust:** When the first method is not enough.
- **You Can Learn:** From every corrected mistake.
- **You Can Improve:** One practice session at a time.

Grade 8 test-day tip: Walk into test day ready to think, not ready to be perfect. Thinking clearly is the goal.

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

Jay Daie

Your Grade 8 Math Friend

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 |
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Better **Results**.