

6 Pennsylvania PSSA

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS



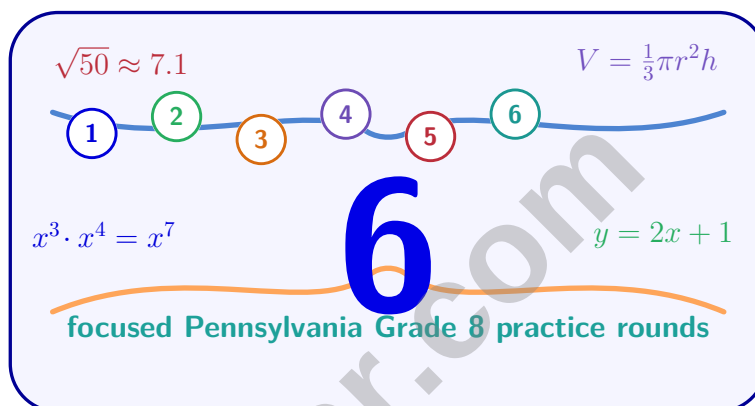
2 ONLINE
TESTS



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

6 Pennsylvania PSSA Grade 8 Math Practice Tests

Grade 8 Standards Practice for Problem Solving, Geometry, and Data



Six complete 40-question Grade 8 PSSA 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, Pennsylvania Grade 8 Problem Solver!

Six focused rounds for sharper PSSA math thinking

This book gives you six full Grade 8 PSSA 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 Pennsylvania 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.

Pennsylvania 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 PSSA 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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1) A line of best fit has equation $y = 3x + 2$. At what x -value is $y = 14$?

☐ A. $x = 3$

☐ C. $x = 5$

☐ B. $x = 4$

☐ D. $x = 6$

2) If $\sqrt{x}$ is rational and x is a positive integer, what must be true about x ?

☐ A. x is odd

☐ C. x is prime

☐ B. x is greater than 10

☐ D. x is a perfect square

3) 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

4) A data set has values $\{3, 7, 9, 11\}$ with mean 7.5. Find the Mean Absolute Deviation.

5) 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



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6)



Based on the number line, which decimal is closest to $\sqrt{60}$?

☐ A. 7.5☐ C. 7.8☐ B. 7.9☐ D. 7.77) Which is the best estimate of $3 - \sqrt{2}$?☐ A. 0.6☐ C. 2.0☐ B. 4.4☐ D. 1.68) Express $\left(\frac{1}{3}\right)^{-2}$ as a positive exponent.☐ A. $\frac{1}{9}$ ☐ C. $\frac{2}{3}$ ☐ B. -9 ☐ D. 99) 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

10) A sandwich shop allows customers to choose one of 3 bread types, one of 5 cheeses, and one of 4 meats. Assuming one of each component, how many different sandwiches can be made?



- 11) The system $\begin{cases} 2x - y = 5 \\ 4x - 2y = 10 \end{cases}$ has how many solutions?
- ☐ A. No solution ☐ C. Exactly two solutions
☐ B. Exactly one solution ☐ D. Infinitely many solutions
- 12) Which represents a LINEAR function?
- ☐ A. $y = 9x^2 - 4$ ☐ C. $y = \sqrt{3x}$
☐ B. $y = -12x - 1$ ☐ D. $y = \frac{6}{x}$
- 13) Three points lie on the same line: $(1, 5)$, $(3, 9)$, and $(x, 13)$. What is the value of x ?
- ☐ A. 4 ☐ C. 6
☐ B. 7 ☐ D. 5
- 14) 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 ☐ C. 15
☐ B. 12 ☐ D. 18
- 15) If $f(x) = \frac{x+4}{2}$ and $f(x) = 5$, what is x ?
- ☐ A. 2 ☐ C. 6
☐ B. 4 ☐ D. 10



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1) A reasonable decimal approximation for $\sqrt{21}$ is closest to?

☐ A. 4

☐ C. 5

☐ B. 5.5

☐ D. 4.5

2) Triangle X is similar to Triangle Y . In Triangle X , one angle measures 60° . What is the measure of the corresponding angle in Triangle Y ?

☐ A. 30°

☐ C. 120°

☐ B. 60°

☐ D. Cannot be determined

3) If each exterior angle of a regular polygon is 18° , what is the polygon?

☐ A. 15-sided polygon

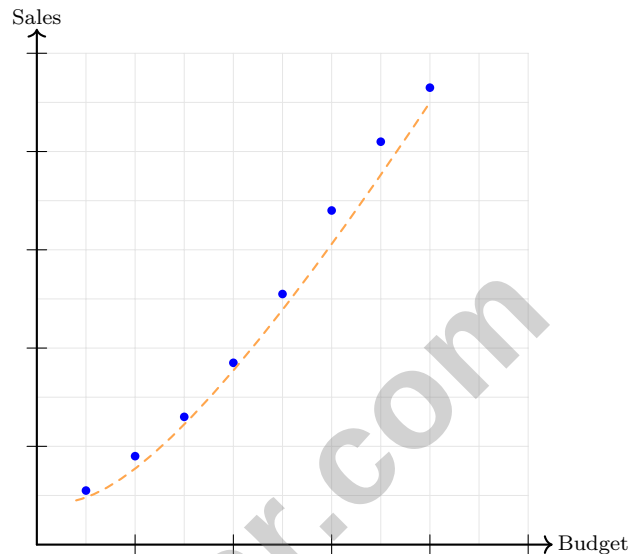
☐ C. 20-sided polygon

☐ B. 18-sided polygon

☐ D. 24-sided polygon



- 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) Which scenario would most likely result in a smaller MAD after removing an outlier?
- ☐ A. The outlier equals the mean
- ☐ B. The outlier is the only value
- ☐ C. The outlier is far from the mean
- ☐ D. The data set has one value



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1) Which pair of equations represents perpendicular lines?

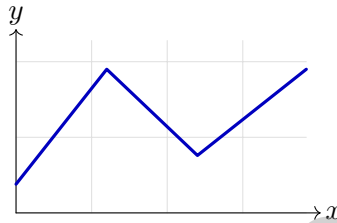
☐ A. $y = 3x + 1$ and $y = 3x - 5$

☐ C. $y = 4x - 2$ and $y = 4x + 6$

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

☐ D. $y = 2x + 4$ and $y = -\frac{1}{2}x + 1$

2) A function exhibits error: a student says “The graph increases at all points.” But the actual graph increases, then decreases, then increases again. Which statement correctly identifies the student’s error?


☐ A. The student only looked at one part of the graph

☐ C. The graph is decreasing everywhere

☐ B. The graph is increasing everywhere

☐ D. The graph is constant everywhere

3) An error was made: a student calculated that if legs are 10 and 10, the hypotenuse is 20. What is the correct hypotenuse?

☐ A. $10\sqrt{2}$

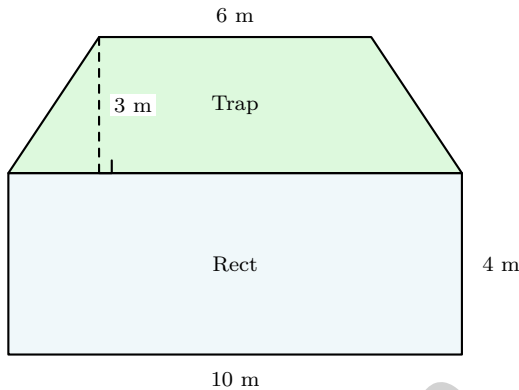
☐ C. 20

☐ B. $\sqrt{200}$

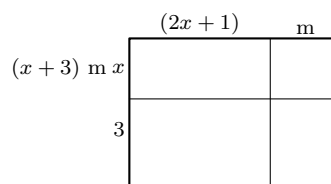
☐ D. 14 (approx)



- 4) A composite figure is a trapezoid (bases 6 m and 10 m, height 3 m) stacked on top of a rectangle (base 10 m, height 4 m). What is the total area?



- ☐ A. 28 m^2
☐ C. 64 m^2
☐ B. 40 m^2
☐ D. 76 m^2
- 5) 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
- 6) A garden is shaped like a rectangle with length $(2x + 1)$ m and width $(x + 3)$ m. What is its area in square meters?



- ☐ A. $2x^2 + 7x + 3$
☐ C. $3x^2 + 4x + 3$
☐ B. $2x^2 + 3x + 7$
☐ D. $2x^2 + 6x + 3$



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Pennsylvania PSSA 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 Pennsylvania PSSA practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** [CC.2.2.8.C.2](#) $14 = 3x + 2 \Rightarrow 12 = 3x \Rightarrow x = 4$.
- 2) **Choice D is correct.** [CC.2.1.8.E.1](#) For $\sqrt{x}$ to be rational when x is a positive integer, x must be a perfect square (like 1, 4, 9, 16, 25, etc.). Non-perfect squares have irrational square roots.
- 3) **Choice C is correct.** [CC.2.2.8.B.1](#) Move the decimal 8 places right: $1.496 \times 10^8 = 149,600,000$ km.
- 4) **The correct answer is 2.5 .** [CC.2.4.8.B.2](#) Absolute deviations: $|3 - 7.5| = 4.5$, $|7 - 7.5| = 0.5$, $|9 - 7.5| = 1.5$, $|11 - 7.5| = 3.5$. Sum = 10. MAD = $10/4 = 2.5$.
- 5) **Choice B is correct.** [CC.2.2.8.C.2](#) Equation: $C = 35h + 50$. Set $C = 225$: $225 = 35h + 50 \Rightarrow 175 = 35h \Rightarrow h = 5$ hours.
- 6) **Choice D is correct.** [CC.2.1.8.E.4](#) $7.7^2 = 59.29$ and $7.8^2 = 60.84$. The number 60 is a little closer to 59.29 than to 60.84, so $\sqrt{60} \approx 7.746$ is closer to 7.7 than to 7.8.
- 7) **Choice D is correct.** [CC.2.1.8.E.1](#) $\sqrt{2} \approx 1.41$, so $3 - 1.41 = 1.59 \approx 1.6$.
- 8) **Choice D is correct.** [CC.2.2.8.B.1](#) Negative exponent flips the fraction: $\left(\frac{1}{3}\right)^{-2} = \left(\frac{3}{1}\right)^2 = 3^2 = 9$.
- 9) **Choice C is correct.** [CC.2.2.8.B.3](#) $\sqrt{36} = 6$ and $\sqrt[3]{216} = 6$, so they are equal.
- 10) **The correct answer is 60 .** [CC.2.3.8.A.2](#) Apply the Counting Principle: $3 \times 5 \times 4 = 60$ different sandwiches.
- 11) **Choice D is correct.** [CC.2.2.8.B.3](#) The second equation is exactly 2 times the first: $4x - 2y = 10$ is $2(2x - y = 5)$. They represent the same line, so there are infinitely many solutions.
- 12) **Choice B is correct.** [CC.2.2.8.B.3](#) Only $y = -12x - 1$ is in the form $y = mx + b$ with $m = -12$ and $b = -1$. The others involve squares, square roots, and reciprocals.
- 13) **Choice D is correct.** [CC.2.4.8.B.2](#) Slope from $(1, 5)$ to $(3, 9)$ is $\frac{9-5}{3-1} = 2$. From $(3, 9)$ to $(x, 13)$: $2 = \frac{13-9}{x-3}$, so $2 = \frac{4}{x-3}$, giving $x = 5$.
- 14) **Choice A is correct.** [CC.2.3.8.A.1](#) Let s = son's current age. Then father's age is $s + 30$. In 6 years, $s + 36 = 3(s + 6)$. So $s + 36 = 3s + 18$, which gives $18 = 2s$ and $s = 9$.
- 15) **Choice C is correct.** [CC.2.2.8.C.1](#) Solve $\frac{x+4}{2} = 5$: multiply both sides by 2 to get $x + 4 = 10$, so $x = 6$.
- 16) **Choice C is correct.** [CC.2.3.8.A.1](#) Surface area of a cube = $6s^2 = 6(7)^2 = 6(49) = 294$ mm². Distractors: 49 (one face only), 196 (only 4 faces), 343 (edge cubed, confusing with volume).
- 17) **Choice C is correct.** [CC.2.3.8.A.1](#) A 90° counterclockwise rotation uses $(x, y) \rightarrow (-y, x)$. So $(3, -2) \rightarrow (-(-2), 3) = (2, 3)$.
- 18) **The correct answer is A,C.** [CC.2.3.8.A.2](#) 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.
- 19) **Choice A is correct.** [CC.2.2.8.B.2](#) Slope = $\frac{4-0}{2-(-2)} = \frac{4}{4} = 1$. Using $(-2, 0)$: $0 = 1(-2) + b$ gives $b = 2$.
- 20) **Choice A is correct.** [CC.2.2.8.B.3](#) Subtract 8 from both sides: $2x = 12$. Divide by 2: $x = 6$. Check: $2(6) + 8 = 12 + 8 = 20$ ✓.
- 21) **Choice D is correct.** [CC.2.2.8.B.3](#) Multiply by 2: $3x - 6 < 12$. Add 6: $3x < 18$. Divide by 3: $x < 6$.
- 22) **Choice C is correct.** [CC.2.3.8.A.1](#) Dashed lines correspond to STRICT inequalities ($<$ and $>$), which do not include the boundary. The symbols $\leq$ and $\geq$ use solid lines.
- 23) **Choice B is correct.** [CC.2.3.8.A.1](#) $V = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times 3.14 \times 81 \times 14 = \frac{1}{3} \times 3560.76 = 1186.92$ cm³.
- 24) **Choice B is correct.** [CC.2.4.8.B.2](#) The magnitude (absolute value) of the residual tells us the size of the error. Model 2's error of 5 units is larger than Model 1's error of 2 units, regardless of whether the prediction was too high or too low.
- 25) **Choice B is correct.** [CC.2.3.8.A.1](#) Outcomes with H: H1, H2. That's 2 of 4 outcomes. $P = \frac{2}{4} = \frac{1}{2}$.
- 26) **Choice C is correct.** [CC.2.1.8.E.4](#) Divide: $\frac{5 \times 10^6}{2.5 \times 10^3} = \frac{5}{2.5} \times 10^{6-3} = 2 \times 10^3$.



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A Note for a Careful Thinker

Hi, Careful Thinker!

◇ This deep and steady book gave you six full Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. This book gave you room to practice the kind of thinking eighth graders need: modeling linear relationships, solving systems, connecting algebra and geometry, and interpreting data. ◇

★ **Remember this:** The goal was never just to finish pages. The goal was to become the kind of student who knows how to begin, how to adjust, and how to check. ★

Your Careful-Thinking Toolkit

- **Read Twice:** First for the story, second for the math.
- **Label Values:** Give each number a job.
- **Check Signs:** Negatives and inequalities deserve attention.
- **Use Evidence:** Let the work prove the answer.

Grade 8 test-day tip: On test day, underline the question before solving. It keeps your answer aimed at the right target.

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

Jay Daie

Your Math Practice 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! |



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2 ONLINE TESTS



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