

PENNSYLVANIA

PSSA

GRADE 8 MATH

PRACTICE TESTS

5

PRINTED
TESTS



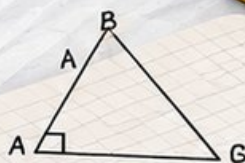
2

 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.



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



$$y = mx + b$$

5 Pennsylvania PSSA Grade 8 Math Practice Tests

Five PSSA Tests for Focused Grade 8 Practice



Five 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!

Five focused rounds for sharper PSSA math thinking

This book gives you five 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 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.

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?

Five PSSA 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	_____	13
★ Practice Test 2	_____	30
★ Practice Test 3	_____	47
★ Practice Test 4	_____	64
★ Practice Test 5	_____	80
Practice Test Answer Keys	_____	96
Practice Test Answers and Explanations	_____	100

1) Solve for t : $2(t + 3) = t + 10$

☐ A. $t = 4$

☐ C. $t = 2$

☐ B. $t = 16$

☐ D. $t = 8$

2) If $x^2 = 81$, what are the possible values of x ?

☐ A. 9 only

☐ C. 9 or -9

☐ B. -9 only

☐ D. 3 or -3

3) A function displays the pattern: $(1, 2), (2, 4), (3, 8), (4, 16)$. What type of function is this?

☐ A. Linear, because y increases

☐ D. Nonlinear, but could still be linear with the right data

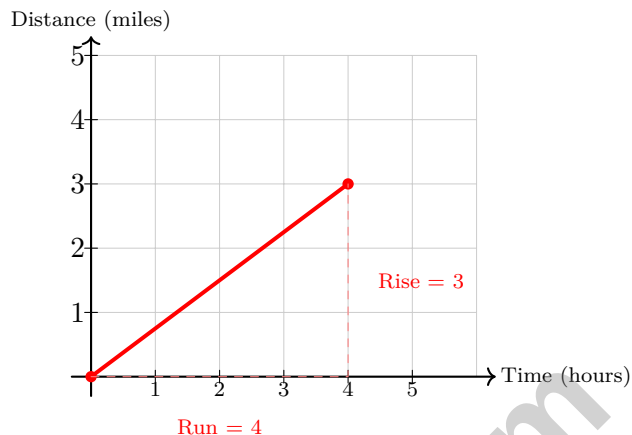
☐ B. Linear, with slope 2 per x -unit

☐ C. Nonlinear, exponential (doubling pattern)



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- 4) A car travels at a constant speed. The graph shows its distance from the start over time.



What is the slope (rate of change) of the car's distance?

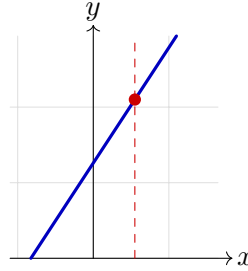
- ☐ A. 1 mile per hour
- ☐ B. $\frac{4}{3}$ miles per hour
- ☐ C. $\frac{3}{4}$ miles per hour
- ☐ D. 4 miles per hour
- 5) What two positive integers multiply to 21 and add to 10?

- 6) To solve the system $y = 2x - 3$ and $y = -x + 6$, which method is most efficient?

- ☐ A. Elimination
- ☐ B. Graphing
- ☐ C. Substitution
- ☐ D. Guess and check



- 7) For the graph of $y = 2x + 3$, how many points can a vertical line intersect for a given x -value?



- 8) If $f(x) = x - 3$ and $f(x) = 5$, what is x ?

- ☐ A. 2
☐ B. 8

- ☐ C. 5
☐ D. 15



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1) A two-way table of 250 survey respondents:

	Coffee	Tea	Total
Morning	100	50	150
Afternoon	60	40	100
Total	160	90	250

Among tea drinkers, what is the relative frequency of afternoon consumers, as a decimal?

☐ A. ≈ 0.44

☐ C. ≈ 0.36

☐ B. ≈ 0.40

☐ D. ≈ 0.32

2) Which number is closest to $\sqrt{30}$?

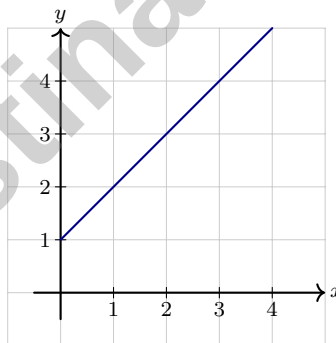
☐ A. 5.4

☐ C. 5.6

☐ B. 5.7

☐ D. 5.5

3) Which graph represents a LINEAR function?



☐ A. No, the relationship is not a function

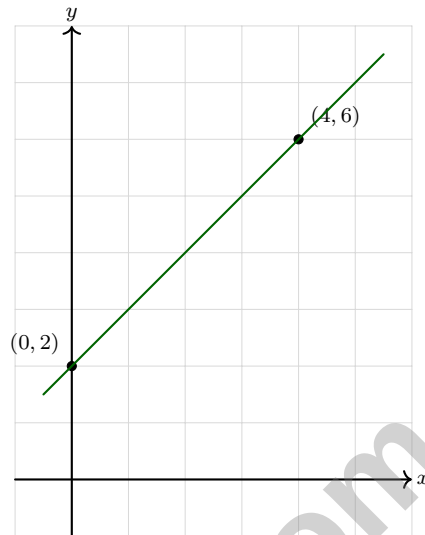
☐ C. No, the slope is positive

☐ D. Yes, it passes through the origin

☐ B. Yes, the graph is a straight line



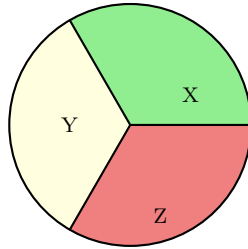
- 4) The graph shows a linear function. What are the slope and y -intercept?



- ☐ A. Slope = 1, intercept = 2 ☐ C. Slope = 4, intercept = 6
- ☐ B. Slope = 2, intercept = 1 ☐ D. Slope = $\frac{1}{2}$, intercept = 4
- 5) A store notices that for every 2 customers who enter, 1 item is sold. What is the slope of items sold versus customers?
- ☐ A. 2 ☐ C. 3
- ☐ B. $-\frac{1}{2}$ ☐ D. $\frac{1}{2}$
- 6) Which system best models: "The sum of two numbers is 20. Their difference is 4"?
- ☐ A. $x + y = 20$; $x - y = 4$ ☐ C. $x \cdot y = 20$; $x/y = 4$
- ☐ B. $x + y = 20$; $x + y = 4$ ☐ D. $x = 20$; $y = 4$



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1)

The spinner has three sections: X covers 120° , Y covers 120° , Z covers 120° . What is the probability of NOT landing on Y?

- ☐ A. $\frac{1}{2}$
☐ B. $\frac{2}{3}$

- ☐ C. $\frac{1}{3}$
☐ D. $\frac{1}{6}$

2) The table shows a linear function. Find the missing y value.

x	1	2	3	4
y	7	11	?	19

- ☐ A. 13
☐ B. 15

- ☐ C. 14
☐ D. 16

3) A person receives a year-end bonus of \$1,500. She is deciding between: (1) spending it, (2) investing at 6% for 5 years, or (3) using it to pay down debt at 12% APR. Ranking by financial benefit, which is best?

- ☐ A. Spend it
☐ B. Invest at 6%

- ☐ C. Pay down debt at 12%
☐ D. Split equally among all three

4) Simplify $5^0 \cdot n^7 \cdot n^{-7}$.

- ☐ A. n^{14}
☐ B. n

- ☐ C. $5n$
☐ D. 1



5) Between which two consecutive integers does $\sqrt{77}$ lie?

☐ A. 7 and 8

☐ C. 9 and 10

☐ B. 10 and 11

☐ D. 8 and 9

6) Solve the system using elimination:
$$\begin{cases} 5x + 2y = 16 \\ 3x - 2y = 0 \end{cases}$$

☐ A. (2, 3)

☐ C. $(3, \frac{1}{2})$

☐ B. $(\frac{8}{5}, \frac{12}{5})$

☐ D. (0, 8)

7) The mass of the Sun is approximately 2×10^{30} kg. How many times more massive is the Sun than Earth, which has mass 6×10^{24} kg?

8) Which table represents a NONLINEAR function?

x	0	1	2	3
y	1	2	4	8

☐ A. No, y increases

☐ C. Yes, the y -values are doubling

☐ B. Yes, the first differences are not constant

☐ D. No, the x -values are equally spaced



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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 A is correct.** (CC.2.2.8.B.3) Distribute: $2t + 6 = t + 10$. Subtract t and 6: $t = 4$.
- 2) **Choice C is correct.** (CC.2.2.8.B.3) Both $9^2 = 81$ and $(-9)^2 = 81$, so both 9 and -9 are solutions.
- 3) **Choice C is correct.** (CC.2.2.8.B.3) The y -values double with each unit increase in x (2, 4, 8, 16). This exponential growth pattern is nonlinear; first differences are not constant (2, 4, 8).
- 4) **Choice C is correct.** (CC.2.4.8.B.2) The rise is 3 miles and the run is 4 hours. Slope = $\frac{3}{4}$ miles per hour. This is the constant speed.
- 5) **The correct answer is (3, 7).** (CC.2.2.8.B.3) The integers 3 and 7 multiply to 21 and add to 10.
- 6) **Choice C is correct.** (CC.2.3.8.A.1) Since both equations are already solved for y , substitution (setting them equal) is immediate: $2x - 3 = -x + 6$, so $3x = 9$, and $x = 3$. Elimination would require rearranging; graphing is slower for exact answers.
- 7) **The correct answer is 1.** (CC.2.4.8.B.2) A nonvertical line has exactly one y -value for each x -value.
- 8) **Choice B is correct.** (CC.2.2.8.C.1) Solve $x - 3 = 5$ for x : $x = 5 + 3 = 8$.
- 9) **Choice B is correct.** (CC.2.2.8.C.2) The highest point on the graph is at $x = 2$, where $f(2) = 2.5$. This is the maximum of the piecewise function shown.
- 10) **Choice B is correct.** (CC.2.3.8.A.2) Congruent regular polygons have equal side lengths. Both octagons have side length 3 inches.
- 11) **Choice A is correct.** (CC.2.2.8.B.2) Under dilation by scale factor k , length is multiplied by k . So $15 \times \frac{2}{3} = 10$.
- 12) **The correct answer is 10.** (CC.2.4.8.B.2) Car A travels 60 mph and Car B travels 50 mph, so the difference is 10 mph.
- 13) **Choice C is correct.** (CC.2.1.8.E.1) An exterior angle equals the sum of the two remote interior angles: $115 = 48 + x$, so $x = 67^\circ$.
- 14) **Choice A is correct.** (CC.2.3.8.A.3, CC.2.3.8.A.1) Check: $25 + 100 = 125$, so $5^2 + 10^2 = (\sqrt{125})^2$. Note that $\sqrt{125} = 5\sqrt{5}$. This is a valid right triangle using the converse theorem.
- 15) **The correct answer is 5.** (CC.2.2.8.C.2) Slope: $\frac{17-9}{3-1} = \frac{8}{2} = 4$. Using (1, 9): $9 = 4(1) + b \Rightarrow b = 5$.
- 16) **Choice B is correct.** (CC.2.3.8.A.3) Since both points have $x = -2$, the vertical distance is $|5 - (-3)| = |5 + 3| = 8$.
- 17) **Choice A is correct.** (CC.2.3.8.A.2) Corresponding angles are congruent. So $r = 41^\circ$.
- 18) **Choice C is correct.** (CC.2.3.8.A.1) $V = \frac{1}{3} \times B \times h \Rightarrow 500 = \frac{1}{3} \times 100 \times h \Rightarrow h = 15$ m.
- 19) **Choice B is correct.** (CC.2.1.8.E.4) Decompose: rectangle plus triangular roof. Rectangle area = $12 \times 8 = 96$ ft². Triangle area = $\frac{1}{2} \times 12 \times 4 = 24$ ft². Total area = $96 + 24 = 120$ ft².
- 20) **Choice B is correct.** (CC.2.4.8.B.1) The sum for a hexagon is $(6 - 2) \times 180 = 720^\circ$. Each angle is $\frac{720}{6} = 120^\circ$.
- 21) **The correct answer is A,C.** (CC.2.2.8.B.3) Option A: Lines $y = 3x + 1$ and $y = 3x - 2$ are parallel (same slope 3, different intercepts). Option B: Different slopes (3 and $\frac{1}{3}$), so one intersection. Option C: Both equations have the form $2x + y = k$ with $k = 4$ and $k = 6$ (parallel). Option D: Lines $y = 2x$ and $x + y = 6$ have different slopes, so one intersection. Option E: Lines $y = x$ and $y = -x$ have different slopes, intersecting at the origin.
- 22) **Choice D is correct.** (CC.2.4.8.B.1) Tight clustering around an upward trend indicates strong positive correlation. Points that are far from an imaginary line show weak correlation.
- 23) **Choice B is correct.** (CC.2.4.8.B.2) Residual = actual - predicted = $82 - 85 = -3$. Negative residual means the model overestimated (predicted too high).
- 24) **Choice B is correct.** (CC.2.4.8.B.2) MAD must be non-negative because it uses absolute values: all deviations are $|x_i - \bar{x}| \geq 0$. A negative result indicates the student subtracted without taking absolute value, or did not apply the absolute-value operation correctly.
- 25) **Choice D is correct.** (CC.2.3.8.A.1) Numbers less than 4: 1, 2, 3. Rolling a 2 is already included in that set. So favorable outcomes: 1, 2, 3 = 3 outcomes. $P = \frac{3}{6} = \frac{1}{2}$.
- 26) **Choice A is correct.** (CC.2.3.8.A.2) Each letter has 26 choices and each digit has 10 choices. Multiply: $26 \times 26 \times 10 \times 10 \times 10 = 676,000$.



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! |

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