

10

Pennsylvania

PSSA

GRADE

8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10

PRINTED TESTS



2

ONLINE TESTS



Build Confidence



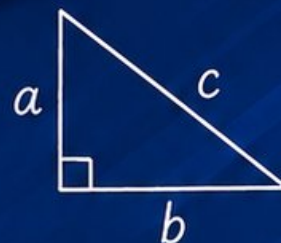
Master Key Math Skills



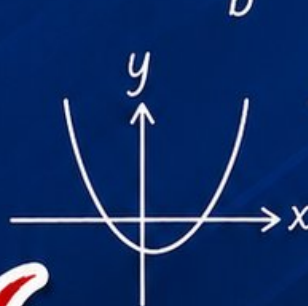
Answer Explanations for
Every Question



Test-Taking Strategies
That Work



$$y = mx + b$$



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

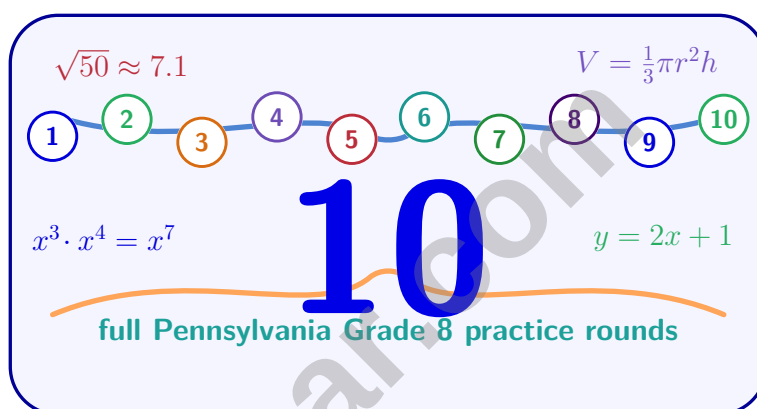


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Pennsylvania PSSA Grade 8 Math Practice Tests

Pennsylvania Grade 8 PSSA Practice for structured readiness with rates, rational operations, expressions, equations, geometry, and data



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

Ten focused rounds for sharper Pennsylvania PSSA math thinking

This book gives you ten full Grade 8 PSSA 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 **Solving Linear Inequalities** (CC.2.2.8.B.3): Analyze and solve linear equations and pairs of simultaneous linear equations. Another recurring target is **Reading Function Values** (CC.2.2.8.C.1): Find outputs from a function rule, table, or graph.

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 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 **Angle Relationships** (CC.2.3.8.A.2): Understand and apply congruence, similarity, and geometric transformations using various tools. The same routine helps with **Rotations, Reflections, and Translations** (CC.2.3.8.A.1): Verify experimentally the properties of rotations, reflections, and translations.

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?

Ten Pennsylvania PSSA 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 Pennsylvania 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 **Composite Figures: Area and Perimeter** (CC.2.1.8.E.4): Estimate irrational numbers by comparing them to rational numbers. You will also meet **The Pythagorean Theorem** (CC.2.3.8.A.3): Explain a proof of the Pythagorean Theorem and its converse.



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1) If $x - 8 \leq -2$, what is the solution?

☐ A. $x \leq 6$

☐ C. $x \leq -10$

☐ B. $x \geq 6$

☐ D. $x \geq -10$

2) A cylinder has radius 4 cm and height 9 cm. What is the difference between total surface area and lateral surface area?

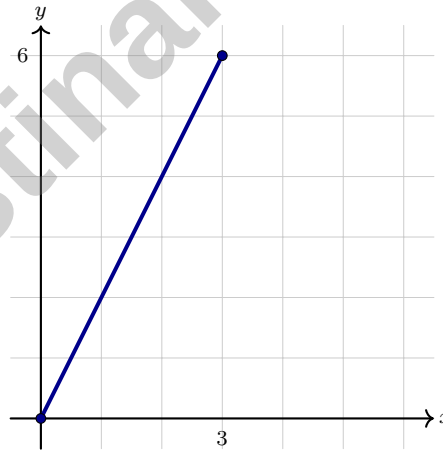
☐ A. $32\pi \text{ cm}^2$

☐ C. $72\pi \text{ cm}^2$

☐ B. $16\pi \text{ cm}^2$

☐ D. $40\pi \text{ cm}^2$

3) Evaluate 2^{-3} and express it as a decimal.



4)

What is the slope of the line shown in the graph?

☐ A. $\frac{1}{2}$

☐ C. 3

☐ B. 6

☐ D. 2



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5) Solve by substitution: $\begin{cases} y = -x + 7 \\ 2x + y = 10 \end{cases}$

☐ A. (2, 5)

☐ C. (4, 3)

☐ B. (5, 2)

☐ D. (3, 4)

6) Which equation represents a function where each input x has exactly one output y ?

☐ A. $x^2 + y^2 = 9$ (circle)

☐ C. $|y| = x$ (absolute value of y)

☐ B. $y = \sqrt[3]{x}$ (cube root)

☐ D. $y = \pm\sqrt{x}$ (both square roots)

7) Interest earned: Account X: $I(m) = 0.8m$ (monthly interest in dollars). Account Y at month 0: \$0, month 12: \$10. Which earns more annually (12 months)?

☐ A. Account X

☐ C. Both earn equal

☐ B. Account Y

☐ D. Cannot be determined

8) A taxi charges \$3 to get in the car plus \$0.50 per mile driven. If d represents the distance in miles and C represents the cost in dollars, which equation models this situation?

☐ A. $C = 0.50d + 3$

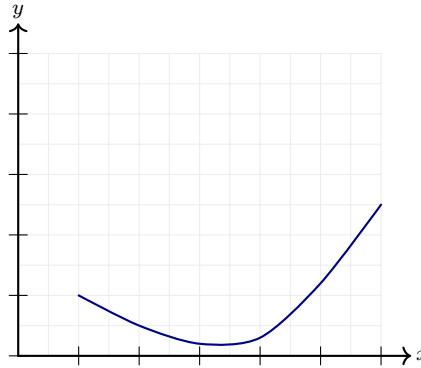
☐ C. $C = 3.50d$

☐ B. $C = 3d + 0.50$

☐ D. $C = 0.50d - 3$



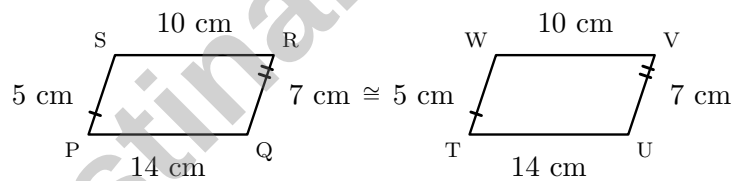
9)



Over which interval is the function decreasing?

☐ A. From $x = 0$ to $x = 2$
☐ C. From $x = 4$ to $x = 5$
☐ B. From $x = 2$ to $x = 4$
☐ D. Over the entire domain

- 10) 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


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- 1) A student claims that $10x + 25$ factors as $5(2x + 5)$. Is this completely factored?
- ☐ A. Yes, this is the complete factorization.
- ☐ B. No; the GCF should be 10.
- ☐ C. No; $2x + 5$ can be factored further.
- ☐ D. No; a factor of 5 can still be removed.
- 2) A scientist collected data on plant height (cm) versus days of growth. Which scatter plot shows a trend line that is a POOR fit?
- ☐ A. Points spread far from the line with large vertical distances
- ☐ B. Half the points are above the line and half are below
- ☐ C. Line passes through the center of the data cloud
- ☐ D. Points clustered tightly around the line with minimal scatter
- 3) Trapezoid $PQRS$ is similar to Trapezoid $TUVW$ with scale factor $\frac{3}{2}$. If $PQ = 8$ cm in trapezoid $PQRS$, what is the length of TU in trapezoid $TUVW$?
- ☐ A. 12 cm
- ☐ B. 5.33 cm
- ☐ C. 8 cm
- ☐ D. 10.67 cm
- 4) The sum of two people's ages is 35. In 5 years, the older person will be twice the age of the younger person. If the younger person is currently y years old, find y .



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- 5) An exterior angle of a triangle measures 148° . If one of the remote interior angles is 85° , find the other remote interior angle.

- 6) If $g(x) = x + 7$, what is $g(2)$?

☐ A. 5

☐ B. 9

☐ C. 10

☐ D. 14

- 7) Which of the following is rational?

☐ A. π

☐ B. $\sqrt{15}$

☐ C. 0.101001000... (non-repeating)

☐ D. $\sqrt{36}$

- 8) Which equals $0.\overline{36}$?

☐ A. $\frac{36}{100} = \frac{9}{25}$

☐ B. $\frac{6}{10}$

☐ C. $\frac{36}{90}$

☐ D. $\frac{36}{99} = \frac{4}{11}$

- 9) Which number is irrational?

☐ A. $\frac{7}{2}$

☐ B. 3

☐ C. 0.25

☐ D. $\sqrt{5}$



1) Solve for x : $0.2x + 1.5 = 2.5$

☐ A. $x = 5$

☐ C. $x = 0.5$

☐ B. $x = 10$

☐ D. $x = 20$

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

☐ A. 10

☐ C. 12

☐ B. 11

☐ D. 13

3) Looking at the table below, is the function linear or nonlinear?

x	1	2	3	4
y	2	5	10	17
First diff.	3	5	7	

☐ A. Linear, because y increases

☐ C. Linear, because the table has 4

☐ B. Nonlinear, first differences are not constant

☐ D. Nonlinear, because $y > x$

4) A student earns \$15 per hour. Which table represents this relationship?

Hours	1	2	3
Earnings (\$)	15	30	45

What is the slope?

☐ A. 15

☐ C. 30

☐ B. $\frac{1}{15}$

☐ D. $\frac{15}{30}$



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- 5) Two boats leave a dock at the same time, traveling in opposite directions. One boat travels at 20 mph and the other at 15 mph. In how many hours are they 105 miles apart?

☐ A. 2.5 hours ☐ C. 3 hours
☐ B. 4 hours ☐ D. 5 hours

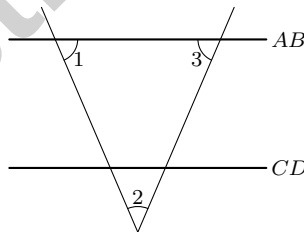
- 6) A rectangle MNOP undergoes a 90-degree clockwise rotation about its center. Which statement is true about rectangle M'N'O'P'?

☐ A. The area increases by half ☐ D. The rectangle is congruent to the original
☐ B. The shape is no longer a rectangle
☐ C. The area doubles

- 7) Point $A(3, -2)$ is rotated 90° counterclockwise about the origin. What are the coordinates of A' ?

☐ A. $(2, 3)$ ☐ C. $(2, -3)$
☐ B. $(-2, -3)$ ☐ D. $(3, 2)$

- 8) In the diagram, $AB \parallel CD$. If angle 1 is 63° and angle 2 is 95° , what is angle 3?



☐ A. 22° ☐ C. 42°
☐ B. 32° ☐ D. 52°



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) Add 8 to both sides: $x \leq -2 + 8 = 6$.
- 2) **Choice A is correct.** (CC.2.3.8.A.1) Total SA = $2\pi r^2 + 2\pi rh = 2\pi(16) + 2\pi(4)(9) = 32\pi + 72\pi = 104\pi \text{ cm}^2$. Lateral SA = $2\pi(4)(9) = 72\pi \text{ cm}^2$. Difference = $104\pi - 72\pi = 32\pi \text{ cm}^2$ (the two circular bases).
- 3) **The correct answer is 0.125.** (CC.2.2.8.B.1) $2^{-3} = \frac{1}{2^3} = \frac{1}{8} = 0.125$.
- 4) **Choice D is correct.** (CC.2.4.8.B.1) Slope = $\frac{\Delta y}{\Delta x} = \frac{6-0}{3-0} = \frac{6}{3} = 2$. The line passes through (0,0) and (3,6).
- 5) **Choice D is correct.** (CC.2.2.8.B.3) Substitute $y = -x + 7$ into $2x + y = 10$: $2x + (-x + 7) = 10$, so $x + 7 = 10$, giving $x = 3$. Then $y = -3 + 7 = 4$. Solution: (3,4).
- 6) **Choice B is correct.** (CC.2.4.8.B.2) Option B: every real input x has exactly one real cube root. Option A (circle): fails VLT. Option C: every positive x gives two y -values ($\pm x$). Option D: every positive x gives two outputs.
- 7) **Choice B is correct.** (CC.2.4.8.B.2) $I_X(12) = 0.8(12) = 9.60$ dollars. Slope of Y : $(10 - 0)/12 \approx 0.833$ per month, so $I_Y(12) = 10$ dollars. Since $10 > 9.60$, Account Y earns more.
- 8) **Choice A is correct.** (CC.2.2.8.C.2) Initial fee is \$3 (intercept), rate per mile is \$0.50 (slope). Equation: $C = 0.50d + 3$.
- 9) **Choice A is correct.** (CC.2.2.8.C.2) The y -values decrease from 1 at $x = 0$ to approximately 0.2 at $x = 2$. After $x = 2$, the curve increases.
- 10) **Choice C is correct.** (CC.2.3.8.A.2) Perimeter of PQRS = $10 + 14 + 5 + 7 = 36 \text{ cm}$. Since TUVW is congruent to PQRS, its perimeter is also 36 cm.
- 11) **Choice A is correct.** (CC.2.3.8.A.3) $c^2 = 9^2 + 12^2 = 81 + 144 = 225$, so $c = \sqrt{225} = 15$ units. (This is a 9-12-15 triple, a $3 \times$ multiple of 3-4-5.)
- 12) **Choice D is correct.** (CC.2.3.8.A.2) A linear pair of angles is supplementary. So the other angle is $180 - 42 = 138^\circ$.
- 13) **Choice B is correct.** (CC.2.4.8.B.1) A hexagon's interior angles add to 720° . The known angles add to $88 + 112 + 95 + 118 + 147 = 560^\circ$, so the sixth angle is $720 - 560 = 160^\circ$.
- 14) **Choice A is correct.** (CC.2.4.8.B.1) The rate of change is not constant, showing a curved or leveling pattern rather than a straight line. This indicates a nonlinear association.
- 15) **Choice C is correct.** (CC.2.4.8.B.2) The y -intercept (15) is the cost when $u = 0$, representing fixed storage costs.
- 16) **Choice C is correct.** (CC.2.4.8.B.2) Absolute deviations: $|15 - 21| = 6$, $|18 - 21| = 3$, $|21 - 21| = 0$, $|24 - 21| = 3$, $|27 - 21| = 6$. Sum = 18. MAD = $18/5 = 3.6$.
- 17) **Choice D is correct.** (CC.2.3.8.A.1) After 3 years: $A = 2000 + 2000 \times 0.05 \times 3 = \$2,300$. Another 3 years of simple interest on \$2,000: $I = 2000 \times 0.05 \times 3 = \300 . Total: $\$2,300 + \$300 = \$2,600$. (Note: Simple interest, not compound, means the same principal earns the same amount each 3-year period.)
- 18) **The correct answer is A,C.** (CC.2.3.8.A.1) A is correct: $P(\text{heads}) = \frac{1}{2}$. C is correct: $P(\text{heads and 4}) = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$. B is wrong: $P(4) = \frac{1}{6}$. D is wrong: total outcomes = 12. E is wrong: $P(\text{not heads}) = \frac{1}{2}$.
- 19) **Choice D is correct.** (CC.2.2.8.B.3) $3 \times 3 \times 3 = 27$, so $\sqrt[3]{27} = 3$.
- 20) **Choice A is correct.** (CC.2.2.8.B.3) Trinomial $x^2 + 9x + 20$ factors as $(x + 4)(x + 5)$ (multiply: $4 \cdot 5 = 20$, add: $4 + 5 = 9$).
- 21) **Choice B is correct.** (CC.2.2.8.B.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.
- 22) **Choice A is correct.** (CC.2.2.8.B.2) Reflection across $y = x$ swaps coordinates: $(x, y) \rightarrow (y, x)$. So $(-3, 2) \rightarrow (2, -3)$.
- 23) **The correct answer is 1×10^{-5} .** (CC.2.1.8.E.4) Multiply: $500 \times (2 \times 10^{-8}) = (5 \times 10^2) \times (2 \times 10^{-8}) = (5 \times 2) \times 10^{2+(-8)} = 10 \times 10^{-6} = 1 \times 10^{-5} \text{ kg}$.
- 24) **Choice B is correct.** (CC.2.1.8.E.1) The two acute angles in a right triangle sum to 90° . So $p + (2p + 18) = 90$, which gives $3p = 72$ and $p = 24^\circ$.
- 25) **Choice A is correct.** (CC.2.3.8.A.3, CC.2.3.8.A.1) From $1^2 + (\sqrt{3})^2 = c^2$, we get $1 + 3 = 4$, so $c = \sqrt{4} = 2$ (the 30-60-90 triangle leg ratios).



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Hi, Calm Solver!

◇ This full-length book gave you ten complete Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. A calm mind can see choices more clearly. That matters in Grade 8, where one problem may have several possible entry points. ◇

★ **Remember this:** You practiced building calm by doing full tests. Each completed page is rehearsal for staying steady when the real test feels serious. ★

Calm-Test Moves

- **Pause:** Give your brain one quiet second.
- **Choose:** Pick the first useful step.
- **Continue:** Do not demand perfection immediately.
- **Check:** Use review time wisely.

Grade 8 test-day tip: If you feel rushed, slow your reading for one sentence. Clear reading saves time.

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

Jay Daie

Your Calm-Test Coach

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