

3

Pennsylvania

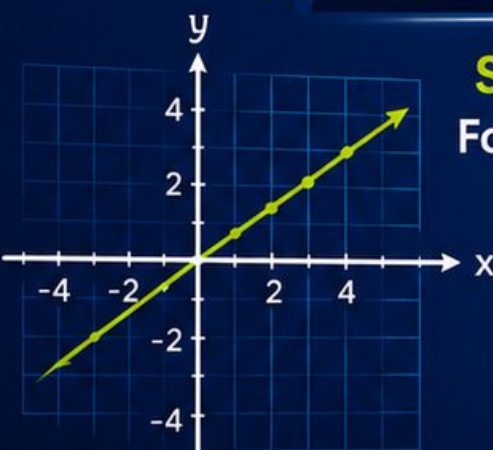
PSSA

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$V = s^3$$



$$y = mx + b$$
$$2x + 5 = 13$$
$$x = 4$$



3 PRINTED TESTS



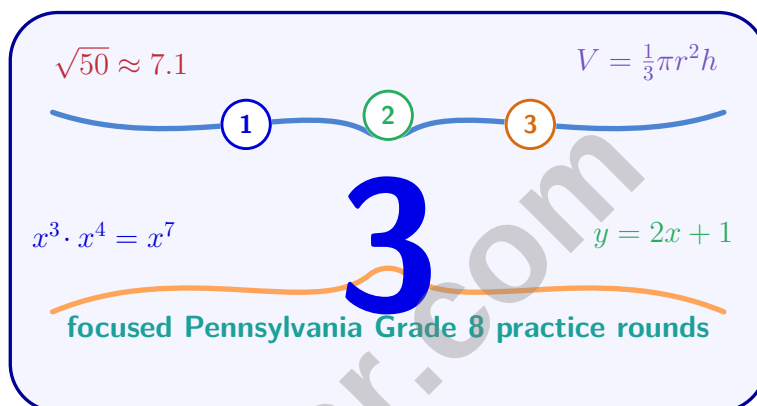
2 ONLINE TESTS



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

3 Pennsylvania PSSA Grade 8 Math Practice Tests

Three PSSA Practice Tests for Targeted Grade 8 Review



Three 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!

Three focused rounds for sharper PSSA math thinking

This book gives you three 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 three-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?

Three PSSA tests, 120 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Test 3	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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Table of Contents



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- 1) A borrower needs to repay \$1,000. She has time but limited monthly cash flow. Comparing the plans, which choice represents the BEST overall financial decision (lowest total cost + manageable payments)?
- ☐ A. \$50/month for 24 months (total \$1,200; low monthly cost) ☐ C. \$125/month for 8 months (total \$1,000; high monthly cost)
- ☐ B. \$100/month for 12 months (total \$1,200; medium monthly cost) ☐ D. \$83/month for 18 months (total \$1,494; expensive overall)
- 2) A cylinder has radius 5 cm and height 12 cm. What is the lateral surface area (side only, not including the bases)?
- ☐ A. $60\pi \text{ cm}^2$ ☐ C. $150\pi \text{ cm}^2$
- ☐ B. $120\pi \text{ cm}^2$ ☐ D. $300\pi \text{ cm}^2$
- 3) Triangle PQR has angles measuring 45° , 60° , and 75° . If triangle PQR is reflected across the y -axis, what are the angle measures in the reflected triangle?
- ☐ A. 45° , 50° , 85° ☐ C. 30° , 60° , 90°
- ☐ B. 45° , 60° , 75° ☐ D. 50° , 65° , 65°
- 4) What is the slope of a line that is perpendicular to the line $y = 2x + 5$?
- ☐ A. 2 ☐ C. $-\frac{1}{2}$
- ☐ B. $\frac{1}{2}$ ☐ D. -2
- 5) Which inequality represents “the product of a number and -2 is greater than 8”?
- ☐ A. $-2x > 8$ ☐ C. $-2x < 8$
- ☐ B. $2x > 8$ ☐ D. $x > -4$



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6) A student graphs $y \geq x$ and mistakenly shades BELOW the line. What is the error?

- ☐ A. Should have used a dashed line ☐ C. Should have shaded BELOW the line
☐ B. Should have shaded ABOVE the line ☐ D. Should have used the inequality $y < x$

7) A cone has the same radius and height as a cylinder. If the cylinder's volume is 450 cubic meters, what is the cone's volume?

- ☐ A. 150 m³ ☐ C. 900 m³
☐ B. 225 m³ ☐ D. 1350 m³

8) Look at the table. Which expression is **not** equivalent to x^6 ?

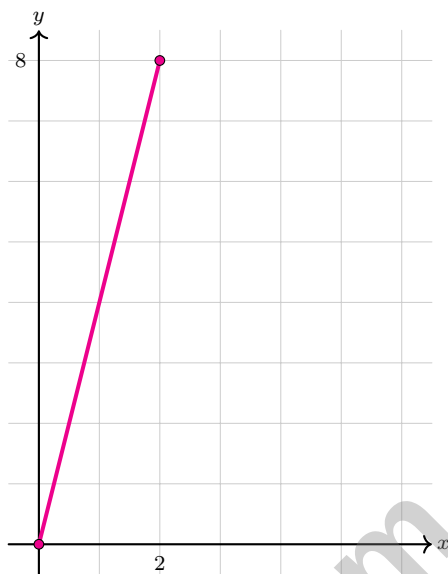
Option	Expression
A.	$(x^2)^3$
B.	$x^3 \cdot x^3$
C.	$x^8 \div x^2$
D.	$x^6 + x^0$

- ☐ A. Option A ☐ C. Option C
☐ B. Option B ☐ D. Option D

9) $\frac{2.8 \times 10^7}{7 \times 10^4} = ?$

- ☐ A. 0.4×10^3 ☐ C. 4×10^3
☐ B. 0.4×10^7 ☐ D. 4×10^2





10)

Which equation represents this line?

☐ A. $y = 2x$

☐ B. $y = 8x$

☐ C. $y = 6x$

☐ D. $y = 4x$

11) Solve for y : $\frac{y}{2} + \frac{y}{3} = 10$

☐ A. $y = 10$

☐ B. $y = 20$

☐ C. $y = 15$

☐ D. $y = 12$

12) A system of two linear equations has no solution. Which statement must be true?

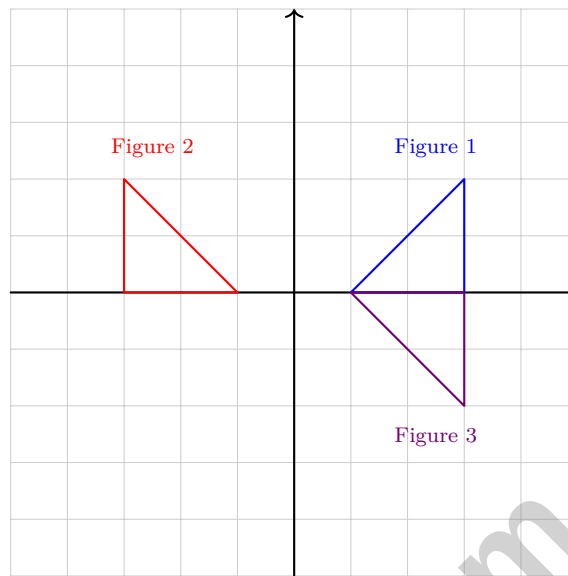
☐ A. Both lines have the same y -intercept☐ B. Both slopes are negative☐ C. The lines have the same slope and different y -intercepts☐ D. The lines are perpendicular

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- 1) A quadrilateral is rotated 180° about the origin. If one vertex is at $(-5, 3)$, where is that vertex after the rotation?
- ☐ A. $(5, -3)$ ☐ C. $(5, 3)$
☐ B. $(-5, -3)$ ☐ D. $(3, 5)$
- 2) Which equals $0.\overline{54}$?
- ☐ A. $\frac{54}{100}$ ☐ C. $\frac{54}{90}$
☐ B. $\frac{27}{50}$ ☐ D. $\frac{54}{99} = \frac{6}{11}$
- 3) Which expression is irrational?
- ☐ A. $\sqrt{4} + \sqrt{9}$ ☐ C. $\sqrt{36} - 2$
☐ B. $\sqrt{2} \cdot \sqrt{8}$ ☐ D. $\sqrt{3} + 1$
- 4) Which is the best estimate of $\frac{\pi}{\sqrt{2}}$?
- ☐ A. 1.5 ☐ C. 3.1
☐ B. 4.4 ☐ D. 2.2
- 5) A strand of DNA has width 2.0×10^{-9} m. Convert to standard form.
- ☐ A. 2,000,000,000 m ☐ C. 0.00000002 m
☐ B. 0.000000002 m ☐ D. 0.0000000002 m
- 6) A rectangular prism has length $\frac{3}{2}$ ft, width 1 ft, and height $\frac{1}{2}$ ft. What is its surface area?
- ☐ A. $\frac{11}{4}$ ft² ☐ C. 7 ft²
☐ B. $\frac{11}{2}$ ft² ☐ D. $\frac{15}{2}$ ft²



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7)

If Figure 1 is the original, identify the transformation from Figure 1 to Figure 2 and from Figure 1 to Figure 3.

- ☐ A. Both are rotations ☐ C. Both are translations
☐ B. 1→2 is reflection across y -axis; 1→3 is reflection across x -axis ☐ D. 1→2 is translation; 1→3 is rotation

8) Two lines are parallel. If one line has equation $y = 4x - 2$, which could be the equation of the other line?

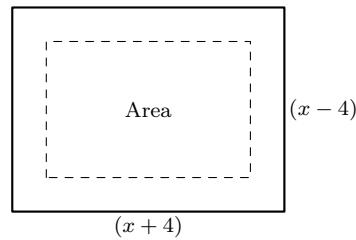
- ☐ A. $y = -4x + 7$ ☐ C. $y = -\frac{1}{4}x + 5$
☐ B. $y = 2x + 4$ ☐ D. $y = 4x + 9$

9) Which phrase matches the inequality $5 - x > 10$?

- ☐ A. Five minus a number is greater than ten ☐ C. A number times five is greater than ten
☐ B. Five plus a number is greater than ten ☐ D. Five minus a number is at least ten



- 1) The area of a rectangle with dimensions $(x + 4)$ and $(x - 4)$ is shown below.



Which expression represents the area?

- ☐ A. $x^2 - 8$ ☐ C. $x^2 - 16$
☐ B. $x^2 + 8x - 16$ ☐ D. $2x - 16$
- 2) A data set has a linear relationship modeled by the line $y = 0.5x + 10$. Which point lies exactly on the trend line?
- ☐ A. (2, 10) ☐ C. (6, 12)
☐ B. (8, 15) ☐ D. (4, 12)
- 3) A line segment from (0, 0) to (4, 4) is dilated by scale factor 0.5 from the origin. Where does it map to?
- ☐ A. From (0, 0) to (2, 2) ☐ C. From (2, 2) to (4, 4)
☐ B. From (0, 0) to (8, 8) ☐ D. Remains the same
- 4) Two hikers start from the same point, walking in opposite directions. One walks at 4 mph, the other at 5 mph. After how many hours are they 27 miles apart?



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& answers

5) Given $f(x) = 2x - 5$, what is $f(4)$?

☐ A. 11

☐ C. -1

☐ B. 3

☐ D. 13

6) In a triangle, the three angles are in the ratio 1 : 2 : 3. Find the measure of the largest angle.

7) Which statement about the square roots of perfect squares is true?

☐ A. They cannot be classified as rational

☐ C. They never equal an integer

☐ B. They are always irrational

☐ D. They can always be written as whole numbers

8) What is $0.\overline{345}$ as a fraction?

☐ A. $\frac{345}{1000}$

☐ C. $\frac{345}{999}$

☐ B. $\frac{3}{45}$

☐ D. $\frac{342}{990} = \frac{19}{55}$

9) A student claims $\sqrt{50}$ is between 5 and 6 because 50 is between 5 and 6. What is the student's error?

☐ A. Correct reasoning

☐ D. Should compare 50 to perfect squares, not integers

☐ B. Should use 7 and 8 instead

☐ C. $\sqrt{50}$ is actually an integer



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.2.3.8.A.1) Option C has zero interest (lowest cost) but requires \$125/month. Option A costs \$200 extra but is affordable at \$50/month. For someone with limited cash flow, Option A balances cost and affordability.
- 2) **Choice B is correct.** (CC.2.3.8.A.1) Lateral surface area $= 2\pi rh = 2\pi(5)(12) = 120\pi \text{ cm}^2$.
- 3) **Choice B is correct.** (CC.2.3.8.A.1) Reflections preserve angle measures. The reflected triangle has the same angles as the original (rigid transformation).
- 4) **Choice C is correct.** (CC.2.2.8.B.2) The slope of the given line is 2. The perpendicular slope is $-\frac{1}{2}$ (negative reciprocal).
- 5) **Choice A is correct.** (CC.2.2.8.B.3) "Product of a number and -2 " is $-2x$; "greater than 8" is > 8 .
- 6) **Choice B is correct.** (CC.2.3.8.A.1) For $y \geq x$, the solution region is above the line. The boundary is solid because the inequality includes equality.
- 7) **Choice A is correct.** (CC.2.3.8.A.1) Since $V_{\text{cone}} = \frac{1}{3}V_{\text{cyl}}$, the cone's volume is $\frac{1}{3} \times 450 = 150 \text{ m}^3$.
- 8) **Choice D is correct.** (CC.2.2.8.B.1) (D) is $x^6 + 1$, not x^6 , because addition is not an exponent law.
- 9) **Choice D is correct.** (CC.2.1.8.E.4) Divide coefficients: $2.8 \div 7 = 0.4$. Subtract exponents: $10^{7-4} = 10^3$. Rewrite: $0.4 \times 10^3 = 4 \times 10^2$.
- 10) **Choice D is correct.** (CC.2.4.8.B.1) Slope $k = \frac{8}{2} = 4$. The equation is $y = 4x$.
- 11) **Choice D is correct.** (CC.2.2.8.B.3) Find common denominator (6): $\frac{3y}{6} + \frac{2y}{6} = 10 \Rightarrow \frac{5y}{6} = 10$. Multiply by 6: $5y = 60$. Divide by 5: $y = 12$.
- 12) **Choice C is correct.** (CC.2.2.8.B.3) For a system to have no solution, the lines must be parallel. This requires the same slope but different y -intercepts.
- 13) **Choice D is correct.** (CC.2.4.8.B.2) Divide 10 by 2: $10 \div 2 = 5$. Subtract 1: $5 - 1 = 4$.
- 14) **Choice B is correct.** (CC.2.4.8.B.2) X fee: \$30/mo. Y fee: $(115 - 50)/(3 - 1) = 65/2 = 32.5/\text{mo}$. Since $32.5 > 30$, Y is higher.
- 15) **Choice A is correct.** (CC.2.2.8.C.2) Slope is $m = \frac{11-5}{4-1} = \frac{6}{3} = 2$.
- 16) **Choice B is correct.** (CC.2.2.8.C.2) From 0 to 2s: flat (height constant at 4m). From 2 to 3s: the height drops to 1m. From 3 to 4s: flat at 1m. From 4 to 5s: the height rises to 3m. From 5 to 6s: flat at 3m.
- 17) **Choice C is correct.** (CC.2.3.8.A.2) Using the Pythagorean Theorem on Triangle 1: $c^2 = 6^2 + 8^2 = 36 + 64 = 100$, so $c = 10 \text{ m}$. Triangle 2 is congruent, so its hypotenuse is also 10 m.
- 18) **The correct answer is 66.67.** (CC.2.2.8.B.1) Divide: $\frac{8 \times 10^{-6}}{1.2 \times 10^{-7}} = \frac{8}{1.2} \times 10^1 = 6.67 \times 10^1 \approx 66.67$.
- 19) **The correct answer is A,C.** (CC.2.1.8.E.1) Statement A is true because rational numbers are closed under addition. Statement C is true because any terminating decimal, such as $0.75 = \frac{3}{4}$, is rational. Statement B is false because two irrational numbers can multiply to a rational number, for example $\sqrt{2} \times \sqrt{8} = 4$. Statement D is false because integers are rational. Statement E is false because perfect squares have rational square roots, not irrational ones.
- 20) **Choice B is correct.** (CC.2.3.8.A.3, CC.2.3.8.A.1) 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).
- 21) **Choice A is correct.** (CC.2.3.8.A.3) $d = \sqrt{(4-0)^2 + (0-3)^2} = \sqrt{16+9} = \sqrt{25} = 5$.
- 22) **Choice C is correct.** (CC.2.3.8.A.2) Angles on a straight line sum to 180° . The third angle is $180 - 42 - 85 = 53^\circ$.
- 23) **Choice B is correct.** (CC.2.1.8.E.4) Rectangle area $= 6 \times 5 = 30 \text{ m}^2$. Triangle area $= \frac{1}{2} \times 6 \times 2 = 6 \text{ m}^2$. Total $= 30 + 6 = 36 \text{ m}^2$.
- 24) **Choice A is correct.** (CC.2.4.8.B.1) For a nonagon ($n = 9$): $(9 - 2) \times 180 = 7 \times 180 = 1260^\circ$. The student is correct.
- 25) **Choice C is correct.** (CC.2.4.8.B.1) A downward trend from upper left to lower right shows negative correlation: as the x -variable increases, the y -variable decreases. The tight clustering around the trend line indicates strong correlation.
- 26) **Choice B is correct.** (CC.2.4.8.B.2) Negative slope means as one variable increases, the other decreases. More training leads to fewer errors.



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Hi, Grade 8 Math Star!

◇ You finished this practice set with real effort. Grade 8 math asks you to connect ideas, explain your thinking, and stay steady through multi-step problems. ◇

★ **Remember this:** Every page you completed helped build stronger habits: reading carefully, choosing a method, showing work, and checking whether the answer makes sense. You practiced across 3 full Grade 8 practice tests, and that repeated effort matters. ★

What You Built

- **Focus:** You stayed with challenging questions.
- **Accuracy:** You learned to slow down when details matter.
- **Reasoning:** You practiced explaining why a method works.
- **Readiness:** You are more prepared than when you started.

Grade 8 test-day tip: Before test day, review the questions that made you pause. Those are the best teachers.

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

Jay Daie

Your Grade 8 Math Friend

PRACTICE TODAY, ACHIEVE TOMORROW!

GRADE
8

Give your child the edge they need with **3 full-length** Grade 8 Math practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, boosting confidence, and preparing for 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.



Build Skills & Boost Confidence

Strengthen understanding and feel prepared for test day.

COVERS ALL ESSENTIAL TOPICS

- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Ratios & Proportional Relationships
- ✓ Linear Equations
- ✓ Functions
- ✓ Geometry
- ✓ Measurement & Data
- ✓ Statistics & Probability
- ✓ Pythagorean Theorem
- ✓ Volume & Surface Area
- ✓ Transformations
- ✓ Inequalities
- ✓ Data Analysis & Graphing
- ✓ And More!



2 Extra Online Practice Tests Included!

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

testinar.com/math8

PRACTICE. PREPARE. SUCCEED.



Testinar

More Practice. More Confidence.
Better **Results**.