

8

New York

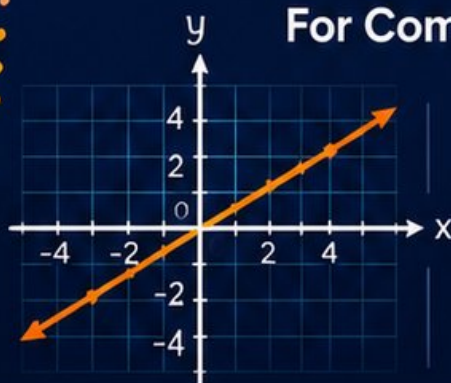
NYSTP

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$

$$C = 2\pi r$$

$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}b^2 h$$



8

 PRINTED TESTS

2

 ONLINE TESTS

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

8 New York NYSTP Grade 8 Math Practice Tests

New York Grade 8 Practice for Functions, Geometry, and Data Analysis



Eight complete 40-question Grade 8 NYSTP 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 York Grade 8 Problem Solver!

Eight focused rounds for sharper NYSTP math thinking

This book gives you eight full Grade 8 NYSTP 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 York 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

An eight-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 York 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?

Eight NYSTP tests, 320 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 7–8	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
Answer Pages	Compact keys and explanations that show why each answer works.

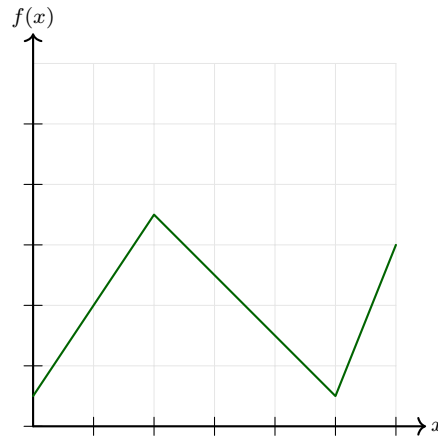
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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1)

At which x -value does the graph reach its maximum?

☐ A. $x = 0$
☐ C. $x = 5$
☐ B. $x = 2$
☐ D. $x = 6$

2) Which pair of variables would most likely show a weak or no correlation?

☐ A. Height and weight

☐ C. Shoe size and favorite color

☐ B. Temperature and ice cream sales

☐ D. Study hours and test scores

3) A residual is the vertical distance between a data point and the trend line. Which set of residuals indicates the BEST fit?

☐ A. Residuals of 15, -12 , 18, -14 , 20

☐ C. Residuals of -20 , -18 , 22, 25, 19

☐ B. Residuals of -1 , 0, 1, 0, -1
☐ D. Residuals of -5 , -4 , 3, 4, 2


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- 4) A point $P(3, 7)$ moves to $P'(-2, 4)$. What is the translation vector?

- 5) If two supplementary angles are equal, what is the measure of each angle?

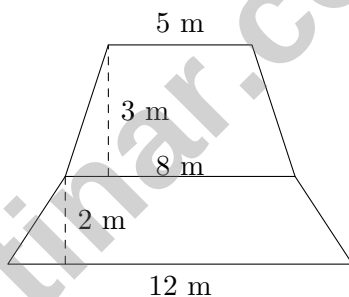
☐ A. 45°

☐ C. 180°

☐ B. 90°

☐ D. 360°

- 6) A composite figure is an asymmetric shape made of two trapezoids stacked vertically. Top trapezoid: bases 5 m and 8 m, height 3 m. Bottom trapezoid: bases 8 m and 12 m, height 2 m. What is the combined area?



☐ A. 15 m^2

☐ C. 35 m^2

☐ B. 20 m^2

☐ D. 39.5 m^2



7) 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

8) Two classes have the same mean test score of 75. Class A has MAD = 3, and Class B has MAD = 8. What does this tell us?

- ☐ A. Class B has higher individual scores
 ☐ C. Class A has more consistent scores
☐ B. Class A has more students
 ☐ D. Class B performed better overall

9) Which expression equals a rational number?

- ☐ A. $\sqrt{2} \times \sqrt{3}$
☐ C. $\sqrt{3} + \sqrt{3}$
☐ B. $\sqrt{4} + \sqrt{5}$
☐ D. $\sqrt{9} \times \sqrt{4}$

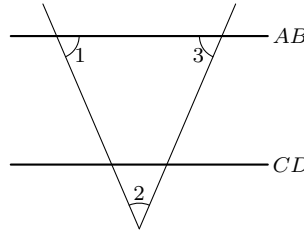
10) Simplify and estimate $\sqrt{5} \times \sqrt{20}$.

- ☐ A. Exactly 5
 ☐ C. Approximately 7.1
☐ B. Approximately 11.2
 ☐ D. Exactly 10



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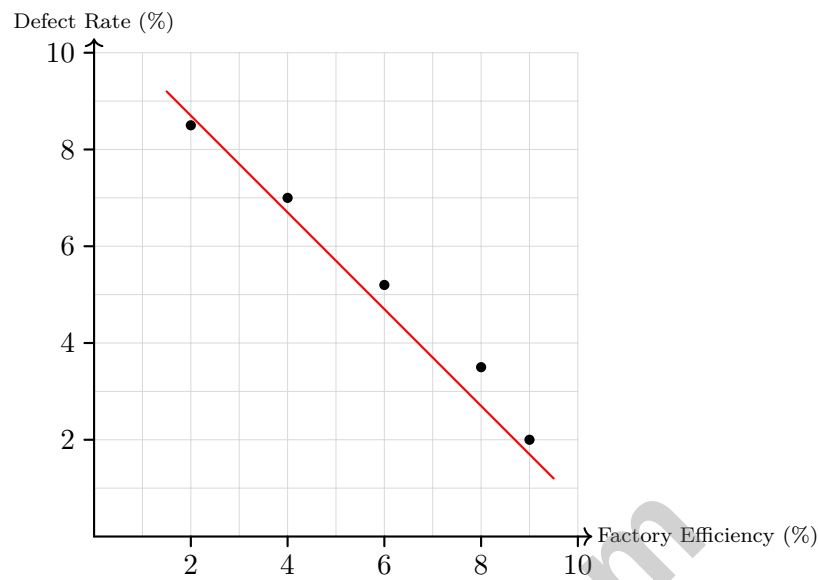
- 1) In the diagram, $AB \parallel CD$. If angle 1 is 63° and angle 2 is 95° , what is angle 3?



- ☐ A. 22°
☐ C. 42°
☐ B. 32°
☐ D. 52°
- 2) Which statement about $y = \frac{3}{4}x + 2$ is TRUE?
- ☐ A. It is nonlinear because the slope is a fraction
 ☐ C. It is nonlinear because the y -intercept is positive
☐ B. It is linear and can be written in the form $y = mx + b$
☐ D. It is linear only if m is a whole number
- 3) If a segment has length 15 units and is dilated by scale factor $\frac{2}{3}$, what is the length of the dilated segment?
- ☐ A. 10 units
 ☐ C. 22.5 units
☐ B. 15 units
 ☐ D. 20 units
- 4) Which scatter plot pattern would suggest there is **no correlation** between two variables?
- ☐ A. Points scattered randomly with no visible pattern
 ☐ C. Points forming a clear downward trend
☐ B. Points forming a clear upward trend
 ☐ D. Points concentrated along a single line



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5)

A factory tracks production efficiency versus defect rate. What does the strong negative slope tell you?

- ☐ A. Higher efficiency causes fewer defects
- ☐ B. As efficiency increases, the defect rate tends to decrease substantially
- ☐ C. Defects are always zero when efficiency is high
- ☐ D. The relationship is unrelated



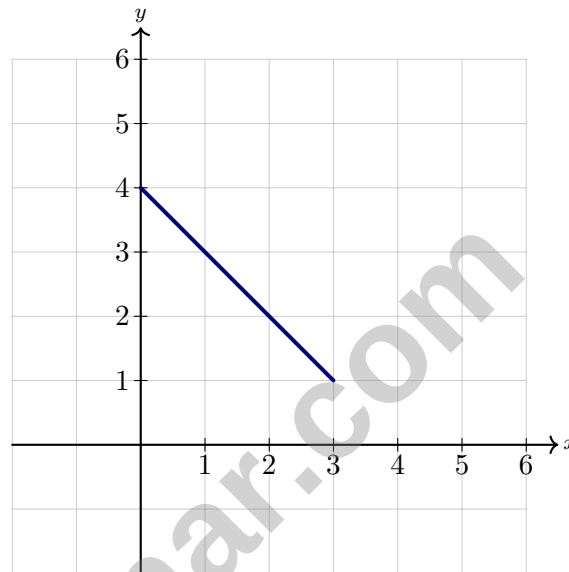
1) When a figure is rotated 270° counterclockwise about the origin, the transformation rule is:

☐ A. $(x, y) \rightarrow (y, -x)$

☐ C. $(x, y) \rightarrow (-x, -y)$

☐ B. $(x, y) \rightarrow (-y, x)$

☐ D. $(x, y) \rightarrow (y, x)$



2)

Which ordered pair is a solution to the equation of the line shown?

☐ A. (1, 3)

☐ C. (4, 1)

☐ B. (2, 1)

☐ D. (3, 2)

3) Solve: $-x \leq 5$

☐ A. $x \leq -5$

☐ C. $x \geq -5$

☐ B. $x \leq 5$

☐ D. $x \geq 5$



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4) Test the point $(0, 0)$ in the inequality $y > x - 3$. Is it in the solution region?

☐ A. Yes, because $0 > -3$

☐ C. No, because $0 < -3$

☐ B. Yes, because $0 = 0$

☐ D. No, because $0 = -3$

5) Which of the following graphs represents a function?

☐ A. A vertical line.

☐ C. A point.

☐ B. A circle.

☐ D. An ellipse centered at the origin.

6) A company's profit P (in dollars) after n years is given by $P = 1000n^2 + 500$. Is this linear or nonlinear?

☐ A. Linear; profit increases steadily

☐ C. Linear; the equation has two terms

☐ B. Nonlinear; n is squared, creating a parabola

☐ D. Nonlinear; profit must eventually decrease



New York NYSTP 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 York NYSTP practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- Choice B is correct.** (8.F.5) The highest point on the graph is at $x = 2$, where $f(2) = 2.5$. This is the maximum of the piecewise function shown.
- Choice C is correct.** (8.SP.1) Shoe size is determined by body size, while favorite color is a personal preference unrelated to shoe size. There is no logical connection.
- Choice B is correct.** (8.NS.2) Smaller residuals indicate better fit. A set of small residuals close to zero suggests the line passes near all data points.
- The correct answer is $(-5, -3)$.** (8.G.3) Subtract coordinates: $(-2, 4) - (3, 7) = (-5, -3)$.
- Choice B is correct.** (8.G.7) If the angles are equal and supplementary, then $x + x = 180$, so $2x = 180$ and $x = 90^\circ$.
- Choice D is correct.** (8.G.7) Top trapezoid area is $\frac{1}{2}(5+8) \times 3 = 19.5 \text{ m}^2$. Bottom trapezoid area is $\frac{1}{2}(8+12) \times 2 = 20 \text{ m}^2$. The combined area is $19.5 + 20 = 39.5 \text{ m}^2$.
- Choice A is correct.** (8.SP.3) This is a column-conditional frequency. Among tea drinkers (90 total), afternoon drinkers are 40. Relative frequency: $\frac{40}{90} \approx 0.44$.
- Choice C is correct.** (8.G.8) A smaller MAD (Class A = 3) indicates less variability and more consistency. Class B's larger MAD (8) shows greater spread in scores.
- Choice D is correct.** (8.NS.1) $\sqrt{9} \times \sqrt{4} = 3 \times 2 = 6$, which is rational. The other expressions yield irrationals: $\sqrt{3} + \sqrt{3} = 2\sqrt{3}$, $\sqrt{4} + \sqrt{5} = 2 + \sqrt{5}$, and $\sqrt{2} \times \sqrt{3} = \sqrt{6}$.
- Choice D is correct.** (8.G.9) $\sqrt{5} \times \sqrt{20} = \sqrt{100} = 10$ exactly. This is a perfect pair.
- Choice C is correct.** (8.G.1c) (A) $0.\bar{5} = \frac{5}{9} \approx 0.556$, so it is greater than $\frac{5}{10}$, not less. (B) $0.\bar{9} = 1$, not < 1 . (C) $0.\bar{3} = \frac{1}{3}$ is correct. (D) $0.\bar{4} = \frac{4}{9}$, not $< \frac{4}{9}$.
- Choice D is correct.** (8.EE.3) Move the decimal 2 places left to get 9.5; the exponent is 2.
- Choice C is correct.** (8.EE.7b) Choose 1st (5 choices), then 2nd (4 remaining), then 3rd (3 remaining): $5 \times 4 \times 3 = 60$.
- Choice C is correct.** (8.EE.7b) Distribute: $8x - 4 = 3x + 9$. Subtract $3x$ from both sides and add 4 to both sides to get $5x = 13$, so $x = \frac{13}{5}$.
- The correct answer is 12.** (8.G.9) From $V = \frac{1}{3}Bh$: $576 = \frac{1}{3} \times 144 \times h \Rightarrow h = 12 \text{ cm}$.
- Choice D is correct.** (8.NS.2) $(5.5)^2 = 30.25$. Since $\sqrt{30} \approx 5.48$ is closest to 5.5, the answer is 30.
- Choice C is correct.** (8.EE.2) Area of a square = $s^2 = 11^2 = 121 \text{ cm}^2$.
- The correct answer is A,D.** (8.G.5) A: Corresponding angles formed by parallel lines and a transversal are congruent—TRUE. B: Not all angles are equal; some are supplementary—FALSE. C: Alternate interior angles are congruent, not supplementary—FALSE. D: Alternate exterior angles are congruent—TRUE. E: Co-interior angles are supplementary (sum to 180°), not complementary—FALSE.
- Choice C is correct.** (8.EE.5) Store A: $8/4 = 2$ per notebook. Store B: $12/5 = 2.40$ per notebook. Store A is cheaper.
- Choice D is correct.** (8.EE.6) A line through the origin has y -intercept 0. With slope 3, the equation is $y = 3x + 0$ or $y = 3x$.
- Choice B is correct.** (8.G.5) A hexagon's interior angles add to 720° . The known angles add to $68 + 118 + 102 + 150 + 106 = 544^\circ$, so the sixth angle is $720 - 544 = 176^\circ$.
- Choice A is correct.** (8.G.7) 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.
- The correct answer is 8.** (8.SP.3) Substitute $x = 10$: $y = \frac{1}{2}(10) + 3 = 5 + 3 = 8$.
- The correct answer is $\frac{1}{6}$.** (8.G.7) Favorable outcomes: (1,6), (2,5), (3,4), (4,3), (5,2), (6,1). That's 6 of 36. $P = \frac{6}{36} = \frac{1}{6}$.
- Choice D is correct.** (8.EE.1) Negative exponent rule: $10^{-6} = \frac{1}{10^6}$.
- Choice C is correct.** (8.EE.4) $\frac{1.4 \times 10^{-10}}{7 \times 10^{-15}} = \frac{1.4}{7} \times 10^5 = 0.2 \times 10^5 = 2 \times 10^4$.



Hi, Math Hero!

◇ This wide-ranging book gave you eight serious Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 8 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

★ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ★

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 8 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!

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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!



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Better Results.