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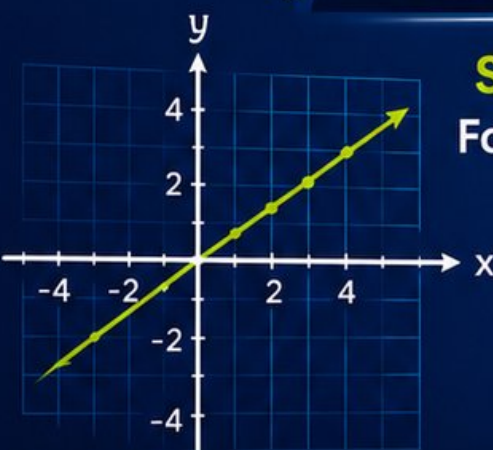
New York NYSTP

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**

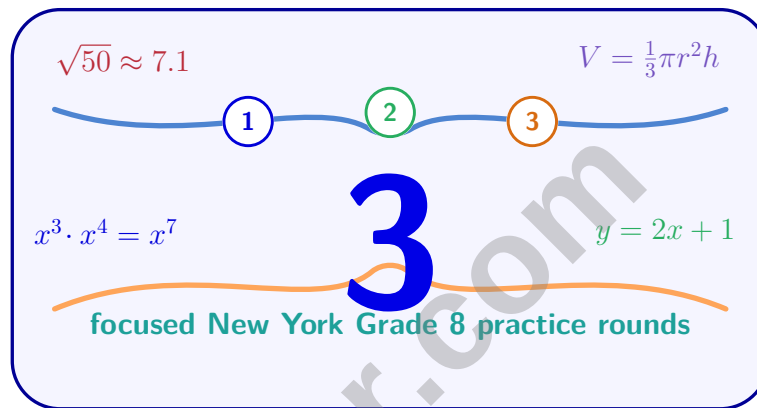
2

**ONLINE
TESTS**

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

3 New York NYSTP Grade 8 Math Practice Tests

Compact New York Test Prep for Grade 8 Math Growth



Three 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!

Three focused rounds for sharper NYSTP math thinking

This book gives you three 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

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.

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?

Three NYSTP 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) 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

2) A cylindrical paint can has radius 2.5 feet and height 3 feet. The paint covers only the curved side (lateral surface), not the top or bottom. Which expression gives the area that needs paint?

☐ A. $2\pi(2.5)^2 + 2\pi(2.5)(3)$

☐ C. $\pi(2.5)^2 + \pi(2.5)(3)$

☐ B. $2\pi(2.5)(3)$

☐ D. $(2.5)(3)$

3) A virus has diameter 1.2×10^{-7} m. Bacteria has diameter 8×10^{-6} m. How many times larger is the bacterium than the virus?

4) A translation moves a point from (a, b) to $(a + 5, b - 3)$. If another point moves from $(-2, 4)$ to some image point using the same translation, what is the image point?

☐ A. $(3, 1)$

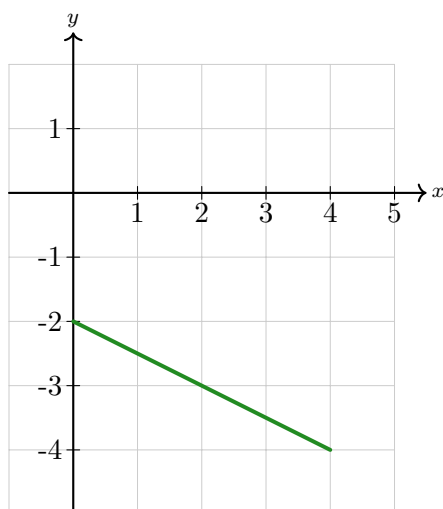
☐ C. $(-7, 1)$

☐ B. $(3, 7)$

☐ D. $(-2, 1)$



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5)

What is the equation of the line shown?

☐ A. $y = -\frac{1}{2}x - 2$

☐ C. $y = \frac{1}{2}x - 2$

☐ B. $y = -2x - 2$

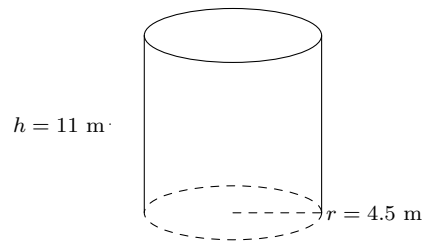
☐ D. $y = 2x - 2$

6) Consider the equation $6x - 4 = 2(3x - 2)$. How many solutions does this have?

☐ A. One solution☐ C. Infinitely many solutions☐ B. No solution☐ D. Two solutions

7) Is the point $(0, 0)$ on the boundary line of $2x + 3y = 0$?

☐ A. Yes☐ C. Only if $x = 0$ ☐ B. No☐ D. Only if $y = 0$ 



8)

A cylinder with radius 4.5 m and height 11 m is shown. Approximately, what is its volume? (Use $\pi \approx 3.14$.)

☐ A. 280.35 m^3

☐ C. 699.44 m^3

☐ B. 560.7 m^3

☐ D. 1401.56 m^3

9) A credit card statement shows a beginning balance of \$500, new purchases of \$300, a payment of \$200, and interest of \$15. What is the ending balance?

☐ A. \$500

☐ C. \$615

☐ B. \$600

☐ D. \$800

10) What is 10^{-2} ?

☐ A. 100

☐ C. 0.01

☐ B. -100

☐ D. -0.01

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

☐ A. 5.4

☐ C. 5.6

☐ B. 5.7

☐ D. 5.5



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1) A rental car costs \$50 per day. If you have a budget of at most \$350, how many days can you rent?

☐ A. $d \leq 7$

☐ C. $d < 7$

☐ B. $d \geq 7$

☐ D. $d > 7$

2) Between which two consecutive integers does $\sqrt{53}$ lie?

☐ A. 6 and 7

☐ C. 8 and 9

☐ B. 5 and 6

☐ D. 7 and 8

3) Which is the best estimate of $\frac{\sqrt{30}}{\sqrt{3}}$?

☐ A. 2.8

☐ C. 3.9

☐ B. 5.0

☐ D. 3.2

4) Convert $0.\overline{72}$ to a fraction in simplest form.

☐ A. $\frac{8}{100}$

☐ C. $\frac{72}{90}$

☐ B. $\frac{72}{100}$

☐ D. $\frac{72}{99} = \frac{8}{11}$

5) The diameter of an atom is about 2×10^{-10} m. What is this in decimal form?

☐ A. 0.0000002 m

☐ C. 0.000000002 m

☐ B. 0.00000002 m

☐ D. 0.0000000002 m

6) A cylinder has radius 5 cm and height 12 cm. What is the lateral surface area (side only, not including the bases)?

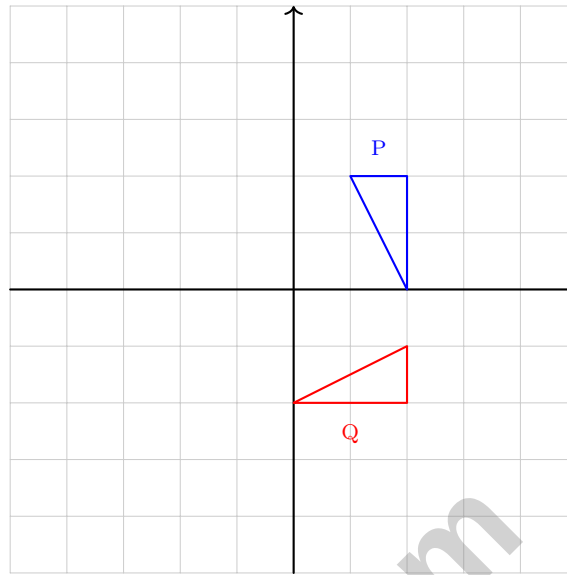
☐ A. $60\pi \text{ cm}^2$

☐ C. $150\pi \text{ cm}^2$

☐ B. $120\pi \text{ cm}^2$

☐ D. $300\pi \text{ cm}^2$





7)

Triangle P is rotated 90° clockwise about the origin to produce triangle Q. Is this correct?

- ☐ A. Yes, the rotation is correct
 ☐ C. No, a 270° counterclockwise rotation would be needed
- ☐ B. No, a 90° counterclockwise rotation would be needed
 ☐ D. No, a 180° rotation would be needed

8) Which equation represents a line with slope 4 and y -intercept 6?

- ☐ A. $y = 6x + 4$
☐ C. $y = 4x - 6$
- ☐ B. $y = -4x + 6$
☐ D. $y = 4x + 6$

9) The height of a ball (in meters) t seconds after being thrown is $h(t) = 20t - 5t^2$. Find $h(2)$.



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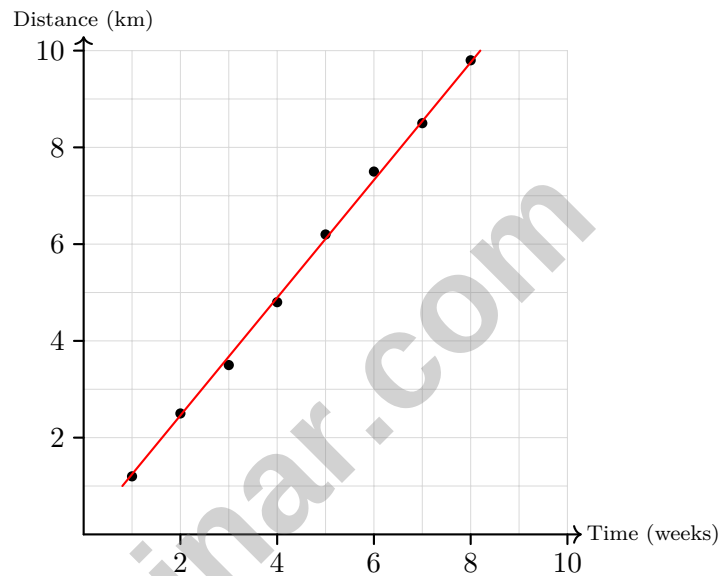
1) The table shows a linear function. Find the missing y value.

x	1	2	3	4
y	7	11	?	19

☐ A. 13

☐ C. 14

☐ B. 15

☐ D. 16


2)

A runner training program tracks distance over time. Based on the trend line, what is the approximate slope (distance per week)?

☐ A. 1 km per week

☐ C. 2 km per week

☐ B. 1.2 km per week

☐ D. 0.5 km per week

3) Triangles MNO and PQR are similar. If $MN = 6$, $NO = 8$, and $PQ = 9$, find QR .

☐ A. 10

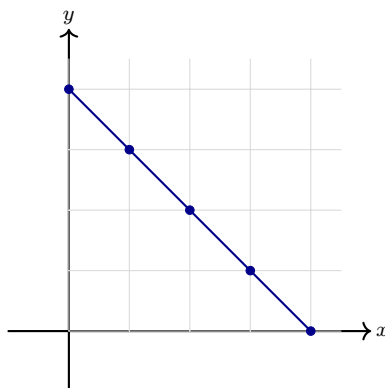
☐ C. 6.75

☐ B. 12

☐ D. 9.5


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- 4) The graph shows function $r(x)$. What is $r(0)$?



- ☐ A. 0 ☐ C. 4
☐ B. 2 ☐ D. 1
- 5) Which statement best explains why $\sqrt{2}$ cannot equal a fraction?
- ☐ A. Because it is too large to fit in a fraction ☐ C. Because there is no pair of integers whose ratio equals exactly $\sqrt{2}$
☐ B. Because 2 is not a perfect square ☐ D. Because the numerator cannot be 2
- 6) Which best approximates $\sqrt[3]{50}$?
- ☐ A. 3.5 ☐ C. 4.2
☐ B. 2.9 ☐ D. 3.7
- 7) 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 .



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

- 1) **Choice D is correct.** (8.EE.8) 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 $x = 5$.
- 2) **Choice B is correct.** (8.G.9) Lateral (curved side) surface area = $2\pi rh = 2\pi(2.5)(3)$. Options A includes the bases; C mixes formulas; D ignores π entirely.
- 3) **The correct answer is 66.67.** (8.EE.3) Divide: $\frac{8 \times 10^{-6}}{1.2 \times 10^{-7}} = \frac{8}{1.2} \times 10^1 = 6.67 \times 10^1 \approx 66.67$.
- 4) **Choice A is correct.** (8.G.1) Apply the translation rule to the second point: $(-2, 4) \rightarrow (-2 + 5, 4 - 3) = (3, 1)$.
- 5) **Choice A is correct.** (8.EE.6) The y -intercept is -2 . Using $(4, -4)$: slope = $\frac{-4 - (-2)}{4 - 0} = \frac{-2}{4} = -\frac{1}{2}$.
- 6) **Choice C is correct.** (8.EE.7b) Expand the right side: $6x - 4 = 6x - 4$. Both sides are identical, so every value of x is a solution.
- 7) **Choice A is correct.** (8.EE.8c) Substitute $(0, 0)$: $2(0) + 3(0) = 0$ ✓. The origin is on the line.
- 8) **Choice C is correct.** (8.G.9) $V = \pi r^2 h = 3.14 \times 20.25 \times 11 = 3.14 \times 222.75 = 699.44 \text{ m}^3$.
- 9) **Choice C is correct.** (8.G.7) Ending balance = $\$500 + \$300 - \$200 + \$15 = \$615$.
- 10) **Choice C is correct.** (8.EE.1) $10^{-2} = \frac{1}{10^2} = \frac{1}{100} = 0.01$.
- 11) **Choice D is correct.** (8.EE.2) $5.5^2 = 30.25$ and $5.4^2 = 29.16$. Since 30 is between these, $\sqrt{30} \approx 5.48$, closest to 5.5.
- 12) **Choice D is correct.** (8.EE.4) Divide coefficients: $1.2 \div 4 = 0.3 = 3 \times 10^{-1}$. Subtract exponents: $10^{4-6} = 10^{-2}$. Combine: $3 \times 10^{-1} \times 10^{-2} = 3 \times 10^{-3}$.
- 13) **Choice C is correct.** (8.EE.5) Slope = $\frac{8-0}{1-0} = 8$. This is a steep line passing through $(0, 0)$ and $(1, 8)$.
- 14) **Choice A is correct.** (8.EE.8a) From the second equation, $y = x - 4$. Substitute into the first: $\frac{1}{4}x + (x - 4) = 2$, so $\frac{5}{4}x = 6$, giving $x = \frac{24}{5}$. Then $y = \frac{24}{5} - 4 = \frac{24}{5} - \frac{20}{5} = \frac{4}{5}$.
- 15) **The correct answer is $\frac{37}{300}$.** (8.G.1c) Set $x = 0.12\bar{3} = 0.12333\dots$. Then $100x = 12.\bar{3}$ and $1000x = 123.\bar{3}$. Subtracting: $900x = 111$, so $x = \frac{111}{900} = \frac{37}{300}$.
- 16) **Choice A is correct.** (8.EE.8a) Add 8 to both sides: $x \leq -2 + 8 = 6$.
- 17) **Choice B is correct.** (8.F.1) Each student ID uniquely identifies one student with one current math grade. Options A, C, and D can pair one input with multiple outputs.
- 18) **Choice B is correct.** (8.F.3) The first differences are 3, 5, 7, which are not constant. When first differences vary, the function is nonlinear.
- 19) **Choice B is correct.** (8.F.5) The constant segments at $y = 2$ and $y = 5$ stay below and above $y = 4$. The increasing segment must cross $y = 4$ exactly once.
- 20) **Choice D is correct.** (8.G.1) Rotation preserves shape and size (rigid motion), so $D'E'F'G'$ is congruent to $DEFG$ and remains a parallelogram. Statements A, B, and C are all true.
- 21) **Choice B is correct.** (8.G.3) Reflection across the x -axis maps $(x, y) \rightarrow (x, -y)$. So $(2, 2) \rightarrow (2, -2)$, giving y -coordinate -2 .
- 22) **The correct answer is A, C.** (8.NS.1) $\sqrt{169} = 13$ is rational (perfect square). The repeating decimal $0.777\dots = \frac{7}{9}$ is rational. The other values are irrational: $\sqrt{170}$ (non-perfect square), 2π (irrational multiple of π), and $\sqrt{2} + 1$ (irrational plus rational is irrational).
- 23) **Choice B is correct.** (8.G.5) One angle at each intersection is supplementary to the 135° angle, giving 45° . At each of the 2 intersections, there are 2 such 45° angles (vertical to each other), for a total of 4.
- 24) **Choice B is correct.** (8.G.6, 8.G.7) Check: $6^2 + 8^2 = 36 + 64 = 100 = 10^2$. This is a scaled 3-4-5 triple (all multiplied by 2).
- 25) **Choice A is correct.** (8.G.7) A linear pair sums to 180° : $5y + (2y + 54) = 180 \Rightarrow 7y + 54 = 180 \Rightarrow 7y = 126 \Rightarrow y = 18^\circ$.
- 26) **The correct answer is $\sqrt{10}$.** (8.NS.2) Since square root is an increasing function, compare the radicands: $10 < 19 < 35$. Therefore $\sqrt{10} < \sqrt{19} < \sqrt{35}$.



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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!

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PRACTICE. PREPARE. SUCCEED.



Testinar

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