

New York

NYSTP

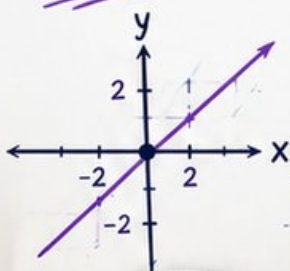
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

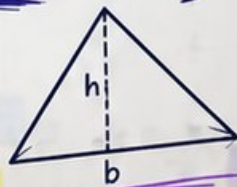
$$y = mx + b$$



**BUILD
CONFIDENCE.
SHARPEN SKILLS.
ACE YOUR
EXAM!**

Practice
Today
Succeed
Tomorrow!

$$A = \frac{1}{2}bh$$



7 PRINTED
TESTS



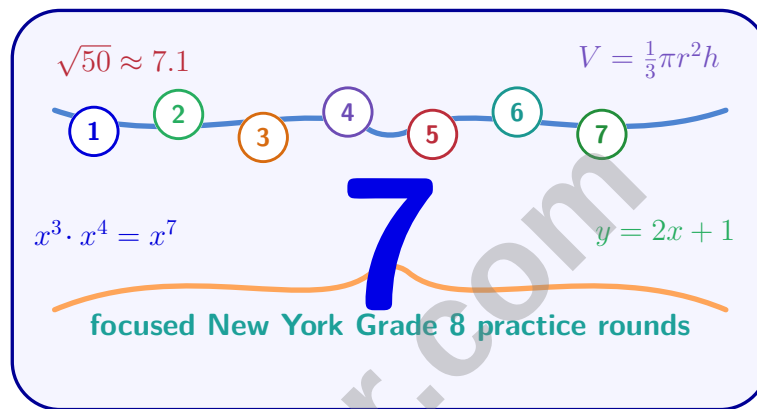
2 ONLINE
TESTS



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

7 New York NYSTP Grade 8 Math Practice Tests

Grade 8 NYSTP Practice with Clear Review and Mixed Math Skills



Seven 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!

Seven focused rounds for sharper NYSTP math thinking

This book gives you seven 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 seven-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?

Seven NYSTP tests, 280 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.
Test 7	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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For more practice
& answers

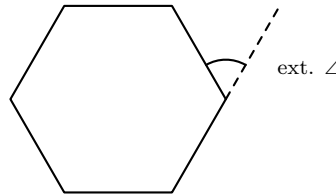
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- 1) A fitness trainer charges by the hour. Client pays \$45 for 3 hours of training. What is the hourly rate (unit rate)?

☐ A. \$12 per hour
☐ B. \$20 per hour

☐ C. \$18 per hour
☐ D. \$15 per hour



2)

For a regular hexagon, what is the measure of each exterior angle?

☐ A. 30°
☐ B. 45°

☐ C. 60°
☐ D. 72°

- 3) A bacterium is 9×10^{-6} meters long. A virus is 3×10^{-8} meters long. The bacterium is how many times longer?

☐ A. 3×10^3
☐ B. 3×10^{-2}

☐ C. 3×10^2
☐ D. 6×10^{-6}

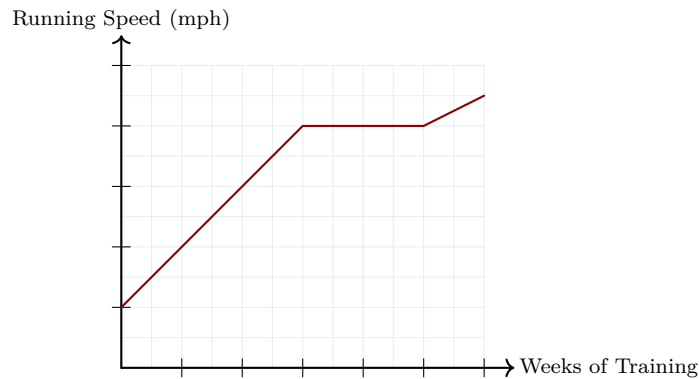
4) Solve:
$$\begin{cases} 4x - 3y = 5 \\ x = 2 \end{cases}$$

☐ A. (2, 1)
☐ B. (2, -1)

☐ C. $(2, \frac{1}{3})$
☐ D. (2, 3)



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5)

A runner trains for 6 weeks. Speed increases for the first 3 weeks, stays constant for 2 weeks (maintenance phase), then improves slightly. During weeks 3–5, what is the runner's speed trend?

- ☐ A. Speed continues to increase ☐ C. Speed decreases
☐ B. Speed remains constant ☐ D. Speed fluctuates randomly

6) The cost of a gym membership is \$50 per month. If Sarah spends a total of \$200 after t months, write and solve an equation to find t . Verify your answer.

7) A student calculates the distance between $(0, 0)$ and $(8, 6)$ and gets $\sqrt{100}$. Is this correct? If correct, simplify. If incorrect, what should it be?

- ☐ A. Correct; $\sqrt{100} = 10$ ☐ C. Incorrect; distance is $\sqrt{14}$
☐ B. Incorrect; distance is 14 ☐ D. Correct; it stays $\sqrt{100}$



8) A triangle is dilated by a scale factor of 4. Which statement is true?

- ☐ A. Each angle is multiplied by 4 ☐ D. The shape becomes a different type of polygon
☐ B. The angles remain the same
☐ C. Each angle is divided by 4

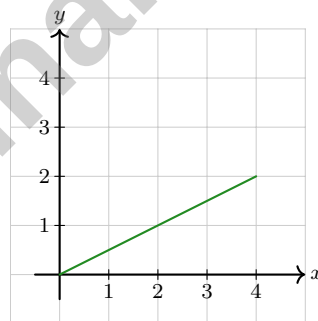
9) For a dashed boundary line, the inequality must use which symbol(s)?

- ☐ A. $\leq$ only ☐ C. $<$ or $>$
☐ B. $\geq$ only ☐ D. $\leq$ or $\geq$

10) A recipe uses 2 cups of flour for every 3 eggs. If e is the number of eggs, which expression gives the amount of flour needed?

- ☐ A. $f = \frac{2e}{3}$ ☐ C. $f = 3e + 2$
☐ B. $f = \frac{3e}{2}$ ☐ D. $f = 2e - 3$

11) Which of the following graphs shows a LINEAR function?

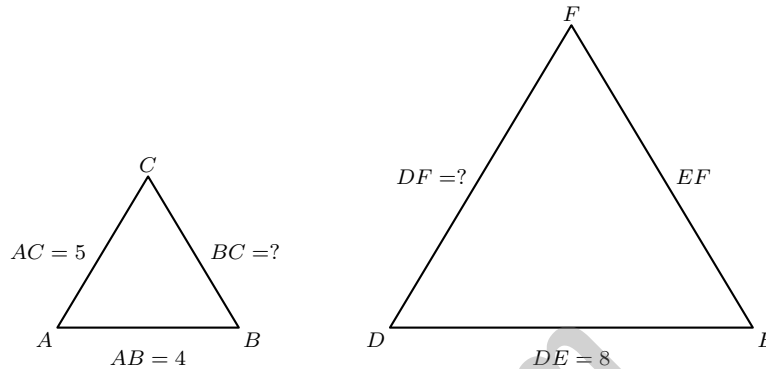


- ☐ A. No, the slope is less than 1 ☐ C. No, only if it passes through the origin
☐ B. No, because the rate of change varies ☐ D. Yes, the line is straight



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- 1) Two similar triangles are shown. Triangle ABC has sides 4 cm and 5 cm. Triangle DEF has a corresponding side of 8 cm. Find the length of the side in DEF corresponding to the 5 cm side in ABC .



- ☐ A. 10 cm
- ☐ B. 6.5 cm
- ☐ C. 9 cm
- ☐ D. 2.5 cm
- 2) A taxi charges a base fare of \$3 plus \$2 per mile. The equation $y = 2x + 3$ represents the total fare y for x miles. What does the slope 2 represent?
- ☐ A. The base fare
- ☐ B. The minimum fare
- ☐ C. The total number of miles
- ☐ D. The charge per mile
- 3) Solve for p : $0.3p + 1.2 = 2.4$
- ☐ A. $p = 3$
- ☐ B. $p = 5$
- ☐ C. $p = 2$
- ☐ D. $p = 4$
- 4) Consider a regular heptagon (7-sided polygon). Which is closest to the measure of each interior angle?
- ☐ A. $\approx 147^\circ$
- ☐ B. $\approx 120^\circ$
- ☐ C. $\approx 138^\circ$
- ☐ D. $\approx 129^\circ$



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5) $(5.2 \times 10^6) - (1.5 \times 10^6) = ?$

☐ A. 0.37×10^6

☐ B. 6.7×10^6

☐ C. 3.7×10^0

☐ D. 3.7×10^6

6) For what value of c does the system $\begin{cases} y = 2x + 3 \\ y = 2x + c \end{cases}$ have no solution?

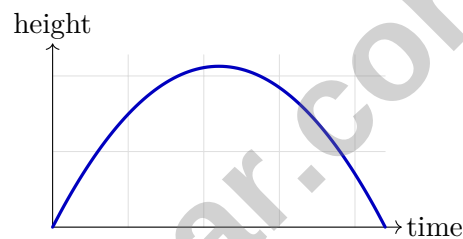
☐ A. $c = 3$ only

☐ B. $c = 0$ only

☐ C. Any $c \neq 3$

☐ D. c can be any value

7) Which graph matches: “A ball is thrown upward and falls back down”?



☐ A. A line going up and to the right

☐ B. A curve (parabola) that rises then falls

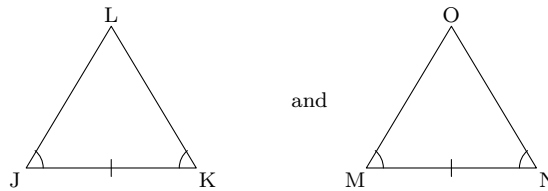
☐ C. A flat horizontal line

☐ D. A line going down and to the right

8) What two positive integers multiply to 21 and add to 10?



- 1) Triangle JKL is congruent to triangle MNO. Which congruence statement is correct?



- ☐ A. Triangle $JKL \cong$ Triangle MNO ☐ C. Triangle $JKL \cong$ Triangle NOM
☐ B. Triangle $JKL \cong$ Triangle MON ☐ D. Triangle $JKL \cong$ Triangle ONM
- 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) In a triangle, the three angles are in the ratio 1 : 2 : 3. Find the measure of the largest angle.

- 4) A student incorrectly calculates the relative frequency of vegetarians among age 18–40 as $\frac{84}{112}$ instead of $\frac{84}{196}$. What error did the student make?
- ☐ A. Used the column total instead of the row total. ☐ C. Used the column total instead of the grand total.
☐ B. Used the grand total instead of the row total. ☐ D. Forgot to convert to a percentage.



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& answers

- 5) An angle is 12° less than three times its supplement. Write and solve an equation to find the angle's measure.

6)

Value	4	8	12
Freq.	2	3	5

Frequency table: mean = 9.2. Calculate MAD.

- ☐ A. 2.0 (forgot to weight by frequency) ☐ D. 4.2 (summed deviations without dividing by n)
☐ B. 2.8
☐ C. 3.4 (used unweighted average of deviations)
- 7) Which of the following is irrational?
- ☐ A. $\sqrt{49}$ ☐ C. $\sqrt{50}$
☐ B. $\frac{7}{8}$ ☐ D. 2.5
- 8) Which is the best estimate of $\sqrt{15}$?
- ☐ A. 3.2 ☐ C. 4.2
☐ B. 7.5 ☐ D. 3.9
- 9) What is $0.\overline{3}$ as a fraction?
- ☐ A. $\frac{1}{10}$ ☐ C. $\frac{3}{99}$
☐ B. $\frac{3}{10}$ ☐ D. $\frac{3}{9} = \frac{1}{3}$



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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& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.EE.5) Unit rate $k = \frac{45}{3} = 15$ dollars per hour.
- 2) **Choice C is correct.** (8.G.5) Each exterior angle of a regular hexagon: $\frac{360}{6} = 60^\circ$.
- 3) **Choice C is correct.** (8.EE.4) Divide: $\frac{9 \times 10^{-6}}{3 \times 10^{-8}} = \frac{9}{3} \times 10^{-6-(-8)} = 3 \times 10^2$.
- 4) **Choice A is correct.** (8.EE.8a) Substitute $x = 2$ into $4x - 3y = 5$: $8 - 3y = 5$, so $-3y = -3$ and $y = 1$. The solution is $(2, 1)$.
- 5) **Choice B is correct.** (8.F.5) The graph shows a flat horizontal line from week 3 to week 5 at 4 mph, indicating no change in speed. This is the maintenance phase after rapid early gains.
- 6) **The correct answer is $t = 4$ months.** (8.EE.7b) The equation is $50t = 200$. Divide both sides by 50: $t = 4$ months. Verify: $50(4) = 200$ ✓.
- 7) **Choice A is correct.** (8.G.8) Distance $= \sqrt{8^2 + 6^2} = \sqrt{64 + 36} = \sqrt{100} = 10$.
- 8) **Choice B is correct.** (8.G.1) Dilation preserves angles (and shape). Only lengths scale, not angle measures.
- 9) **Choice C is correct.** (8.EE.8c) Dashed lines correspond to STRICT inequalities ($<$ and $>$), which do not include the boundary. The symbols $\leq$ and $\geq$ use solid lines.
- 10) **Choice A is correct.** (8.F.1) The ratio is 2 cups flour : 3 eggs. For e eggs, flour needed is $\frac{2}{3} \times e = \frac{2e}{3}$.
- 11) **Choice D is correct.** (8.F.3) A straight line indicates a linear function, regardless of slope or intercept. This graph clearly shows a straight line.
- 12) **Choice B is correct.** (8.G.9) Use $V = \pi r^2 h$: $942 = 3.14 \times r^2 \times 12$. Since $3.14 \times 12 = 37.68$, $r^2 = 942 \div 37.68 = 25$, so $r = 5$ cm.
- 13) **Choice C is correct.** (8.SP.3) Set $P = 500$: $500 = 3.2c - 250 \Rightarrow 3.2c = 750 \Rightarrow c = \frac{750}{3.2} \approx 234.4$. Since cakes are whole items, the bakery must sell at least 235 cakes.
- 14) **Choice A is correct.** (8.G.7) $P(3 \text{ then } 2) = \frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$.
- 15) **The correct answer is 5.** (8.EE.8a) Solve $45 + 5q \geq 70$, giving $q \geq 5$. The minimum whole number is 5.
- 16) **Choice C is correct.** (8.EE.7b) By the Counting Principle, multiply choices: $4 \times 6 \times 3 = 72$.
- 17) **Choice B is correct.** (8.G.1) Since the hexagons are congruent, all corresponding angles are equal. Hexagon GHIJKL has the same angles as ABCDEF: $120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ$. (Note: The interior angle sum of any hexagon is always 720° , so option C is incorrect.)
- 18) **The correct answer is B,E.** (8.EE.6) The equation has slope $-\frac{2}{3}$ and y -intercept 5, so B and E are correct. The point $(5, 0)$ is not on the line because $-\frac{2}{3}(5) + 5 = \frac{5}{3}$, not 0. A perpendicular line would have slope $\frac{3}{2}$, not $-\frac{3}{2}$.
- 19) **Choice B is correct.** (8.G.3) The orange rectangle has width 2; the purple has width 1. Scale factor is $\frac{1}{2}$.
- 20) **Choice C is correct.** (8.G.5) When parallel lines are cut by a transversal, all angles are either 67° or $180 - 67 = 113^\circ$. Since $47^\circ \neq 67^\circ$ and $47^\circ \neq 113^\circ$, it does not appear.
- 21) **Choice C is correct.** (8.G.7) The supplement of an angle is found by subtracting from 180° : $180 - 29 = 151^\circ$.
- 22) **Choice C is correct.** (8.G.9) When linear scale is $k = \frac{3}{2}$, volume scales by $k^3 = \left(\frac{3}{2}\right)^3 = \frac{27}{8}$.
- 23) **Choice B is correct.** (8.G.7) Rectangle area is $11 \times 7 = 77 \text{ cm}^2$. The removed quarter-circle area is $\frac{1}{4} \times 3.14 \times 7^2 = 38.465 \text{ cm}^2$. Remaining area is $77 - 38.465 = 38.535 \text{ cm}^2$.
- 24) **Choice C is correct.** (8.SP.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.
- 25) **The correct answer is $(-1, 3)$.** (8.G.1) Using the rule $(x, y) \rightarrow (-y, x)$: $(3, 1) \rightarrow (-1, 3)$.
- 26) **Choice B is correct.** (8.SP.3) Relative frequency of improvement among medicated patients: $\frac{160}{200} = 0.80$.
- 27) **Choice C is correct.** (8.G.8) Group 1's smaller MAD (2) shows less spread and more consistent performance. Group 2's larger MAD (10) indicates greater variability in scores.



Hi, Progress Maker!

◇ You have done more than complete a set of tests. You have rehearsed the habits that make Grade 8 math feel less surprising. ◇

★ **Remember this:** Progress is not always loud. Sometimes it looks like fewer careless errors, clearer work, better pacing, and more confidence when a problem is unfamiliar. You practiced across 7 full Grade 8 practice tests, and that repeated effort matters. ★

Signs of Growth

- **Clear Work:** Your steps are easier to follow.
- **Better Pacing:** You know when to move on and return.
- **Stronger Checks:** You catch mistakes earlier.
- **Calmer Thinking:** You know what to try next.

Grade 8 test-day tip: Keep one short list of mistakes you often make, then check that list before each practice session.

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

Jay Daie

Your Growth Coach

PRACTICE TODAY SUCCEED TOMORROW!

Give your child the confidence and skills they need with **7 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!

GRADE 8

Practice
Today
Succeed
Tomorrow!

Algebra

Geometry

Statistics

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 | ✓ 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! |



2 EXTRA ONLINE PRACTICE TESTS INCLUDED!

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BUILD CONFIDENCE. SHARPEN SKILLS. ACE YOUR EXAM!