

Maine

Through Year Assessment

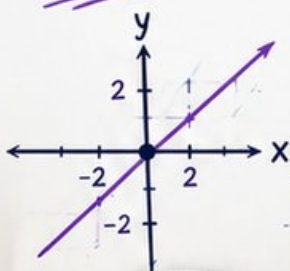
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

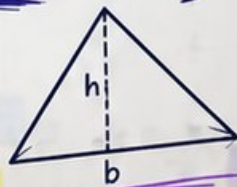
$$y = mx + b$$



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

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



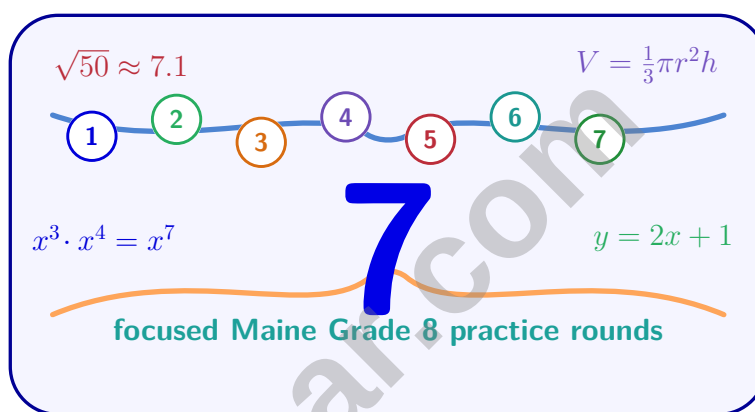
2 ONLINE
TESTS



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

7 Maine Through Year Assessment Grade 8 Math Practice Tests

Seven Through Year Assessment Tests for Sharper Grade 8 Mathematical Thinking



Seven complete 40-question Grade 8 Through Year Assessment 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, Maine Grade 8 Problem Solver!

Seven focused rounds for sharper Through Year Assessment math thinking

This book gives you seven full Grade 8 Through Year Assessment 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 Maine 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.

Maine 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 Through Year Assessment 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 rectangular garden (25 m by 10 m) has a diagonal path of width 1.5 m crossing it. If the path overlaps with the rectangle area, what is the garden area minus the path area? (Approximate the path as a parallelogram with base $\sqrt{25^2 + 10^2} \approx 26.9$ m.)

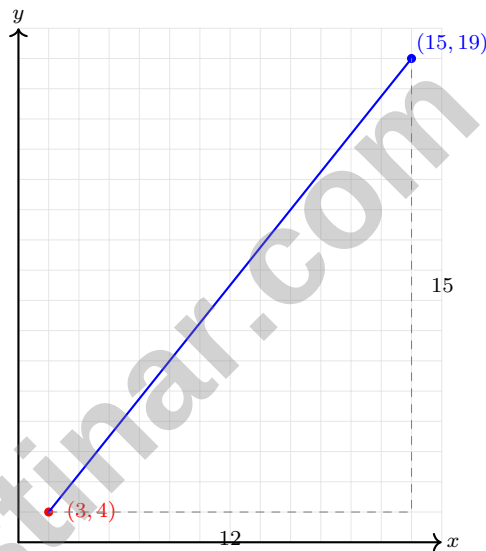
☐ A. 209.7 m^2

☐ C. 209 m^2

☐ B. 210 m^2

☐ D. 250 m^2

- 2) A construction site has a diagonal brace from (3, 4) to (15, 19). What is the length of the brace (rounded to nearest unit)?



☐ A. 27 units

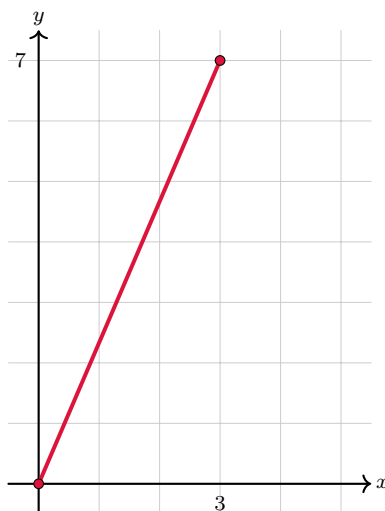
☐ C. 20 units

☐ B. 19 units

☐ D. 15 units



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3)

At $x = 6$, what is the value of y ?

☐ A. 12☐ C. 14☐ B. 13☐ D. 15

4) Which system below can be solved by the elimination shown: adding the two equations to eliminate y ?

☐ A. $3x + y = 10$ and $2x + y = 7$ ☐ C. $x - 2y = 3$ and $2x + y = 5$ ☐ B. $4x + 3y = 12$ and $2x - 3y = 6$ ☐ D. $5x + 2y = 11$ and $3x + y = 6$

5) A line passes through $(2, 9)$ and $(5, 18)$. Which equation represents this line?

☐ A. $y = 3x + 3$ ☐ C. $y = 2x + 5$ ☐ B. $y = 3x + 9$ ☐ D. $y = x + 7$ 

6) A regular nonagon (9-sided polygon) has each interior angle equal to:

☐ A. 120°

☐ C. $\approx 140^\circ$

☐ B. $\approx 128.6^\circ$

☐ D. 144°

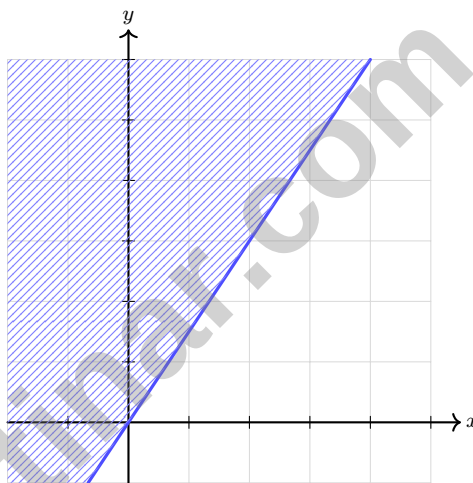
7) A segment from $(2, 1)$ to $(4, 3)$ is dilated by scale factor 2 from the point $(2, 1)$. Where does $(4, 3)$ map to?

☐ A. $(6, 5)$

☐ C. $(8, 6)$

☐ B. $(4, 3)$

☐ D. $(2, 1)$



8)

Which inequality does this graph show?

☐ A. $y > 1.5x$

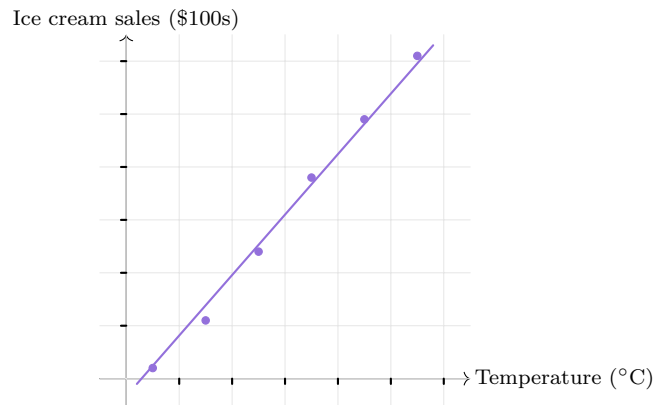
☐ C. $y \geq 1.5x$

☐ B. $y < 1.5x$

☐ D. $y \leq 1.5x$



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1)

An ice cream shop's sales model is $S = 1.1T + 0.3$, where S is sales in \$100s and T is temperature in $^{\circ}\text{C}$. According to the model, what does the slope tell the shop owner?

- ☐ A. Sales increase by \$110 for every 1°C increase
☐ B. Sales are always at least \$30
☐ C. Temperature has no effect on sales
☐ D. Sales are maximized at 1.1°C

2) A line passes through $(0, 7)$ and $(3, 1)$. What is the slope?

- ☐ A. 2
☐ B. -3
☐ C. 3
☐ D. -2

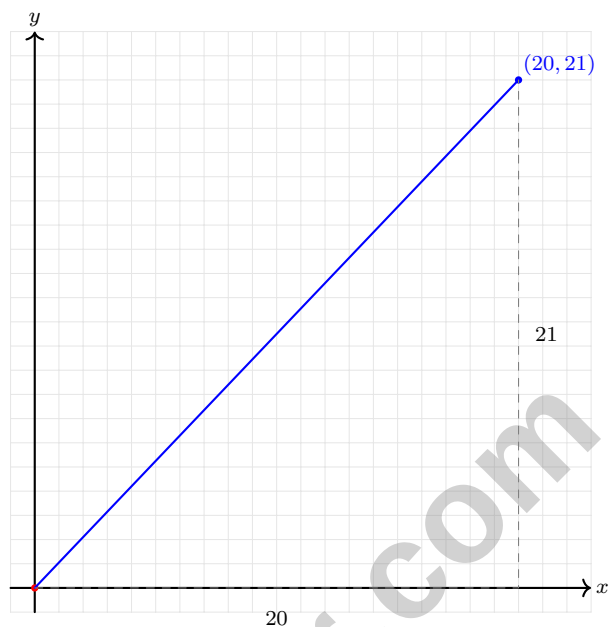
3) Which equation has the solution $x = 2$?

- ☐ A. $3x + 4 = 11$
☐ B. $5x - 1 = 12$
☐ C. $2x + 3 = 7$
☐ D. $4x - 2 = 10$



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- 4) A surveyor measures a plot of land with one corner at $(0, 0)$ and another at $(20, 21)$. What is the distance between these two corners?



- ☐ A. 41
☐ B. 29

- ☐ C. $\sqrt{800}$
☐ D. 1



1) A right triangle has legs of $\sqrt{7}$ and 3. What is the hypotenuse?

☐ A. $\sqrt{16}$

☐ C. $\sqrt{10}$

☐ B. 4

☐ D. 10

2) The line of best fit through a data set is given by $y = -1.5x + 20$. If $x = 4$, what is the predicted y -value?

☐ A. 14

☐ C. 26

☐ B. 16

☐ D. 35

3) A rectangular pyramid has a base 8 m by 5 m and a volume of 240 m^3 . What is its height?

4) A bag has 9 cards: 4 red, 3 blue, 2 green. Three cards are drawn without replacement. What is the probability that all three are red?

☐ A. $\frac{4}{9}$

☐ C. $\frac{12}{504}$

☐ B. $\frac{24}{504}$

☐ D. $\frac{64}{729}$

5) What does $3!$ equal?

☐ A. $3 + 2 = 5$

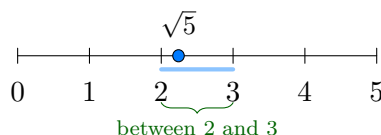
☐ C. $3^3 = 27$

☐ B. $3 \times 2 \times 1 = 6$

☐ D. $\frac{3}{2} = 1.5$



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& answers



6)

Based on the number line, which statement is true?

- ☐ A. $\sqrt{5}$ is rational
☐ B. $\sqrt{5}$ is between 1 and 2
☐ C. $\sqrt{5} = 2.5$
☐ D. $\sqrt{5} \approx 2.24$

7) What is $0.\overline{111}$ as a fraction?

- ☐ A. $\frac{1}{111}$
☐ B. $\frac{111}{100}$
☐ C. $\frac{111}{1000}$
☐ D. $\frac{111}{999} = \frac{1}{9}$

8) A student estimates $\sqrt{99} \approx 9.9$. Is this estimate above or below the actual value?

- ☐ A. Too high
☐ B. Cannot be determined
☐ C. Exactly correct
☐ D. Too low

9) A phone plan charges \$20 base plus \$0.10 per text. If you budget at most \$35, which inequality shows max texts?

- ☐ A. $0.10t + 20 > 35$
☐ B. $20t + 0.10 \leq 35$
☐ C. $0.10 + 20t \geq 35$
☐ D. $0.10t + 20 \leq 35$

10) Complete the table by applying exponent laws:

Start	Law	Result
$3^5 \cdot 3^2$	Add exponents	$3^?$

What is the exponent in the result?

- ☐ A. 3
☐ B. 10
☐ C. 15
☐ D. 7



Maine Through Year Assessment 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 Maine Through Year Assessment practice test.



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For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (8.G.B.7) Garden = $25 \times 10 = 250 \text{ m}^2$. Path $\approx 26.9 \times 1.5 = 40.35 \text{ m}^2$. Remaining $\approx 250 - 40.35 = 209.65 \text{ m}^2$, which rounds to about 209.7 m^2 .
- 2) **Choice B is correct.** (8.G.B.8) $d = \sqrt{(15-3)^2 + (19-4)^2} = \sqrt{12^2 + 15^2} = \sqrt{144 + 225} = \sqrt{369} \approx 19.2$ units. (Rounds to 19.)
- 3) **Choice C is correct.** (8.EE.B.5) Slope $k = \frac{7}{3}$. Equation: $y = \frac{7}{3}x$. At $x = 6$: $y = \frac{7}{3}(6) = 14$.
- 4) **Choice B is correct.** (8.EE.C.8a) In option B, the y coefficients are $+3$ and -3 . Adding these equations eliminates y : $(4x + 3y) + (2x - 3y) = 12 + 6 \Rightarrow 6x = 18$.
- 5) **Choice A is correct.** (8.F.B.4) Slope: $m = \frac{18-9}{5-2} = \frac{9}{3} = 3$. Using point $(2, 9)$: $9 = 3(2) + b \Rightarrow b = 3$. So $y = 3x + 3$.
- 6) **Choice C is correct.** (8.G.A.5) The sum for a nonagon is $(9-2) \times 180 = 1260^\circ$. Each angle is $\frac{1260}{9} = 140^\circ$.
- 7) **Choice A is correct.** (8.G.A.4) With center at $(2, 1)$: displacement from center to $(4, 3)$ is $(2, 2)$. Scale by factor 2: $(4, 4)$. New point is $(2, 1) + (4, 4) = (6, 5)$.
- 8) **Choice C is correct.** (8.EE.C.8c) SOLID line (includes boundary) and shading ABOVE indicate $y \geq 1.5x$.
- 9) **Choice C is correct.** (8.F.A.3) $y = 7 + 2x$ is in the form $y = mx + b$ with $m = 2$ and $b = 7$. The other options have squared terms, square roots, or reciprocals.
- 10) **The correct answer is $x = 4$.** (8.EE.C.7) Distribute the 2: $6x - 2 = 4x + 6$. Subtract $4x$ from both sides: $2x - 2 = 6$. Add 2 to both sides: $2x = 8$. Divide by 2: $x = 4$. Verify: $2(3(4) - 1) = 2(11) = 22$ and $4(4) + 6 = 22$ ✓.
- 11) **Choice C is correct.** (8.G.A.5) Co-interior angles (also called same-side interior or consecutive interior angles) are on the same side of the transversal and between the parallel lines.
- 12) **Choice A is correct.** (8.G.B.8) Deviations: $|50 - 60| = 10$, $|60 - 60| = 0$, $|55 - 60| = 5$, $|65 - 60| = 5$, $|70 - 60| = 10$. Sum = 30. MAD = $30/5 = 6$.
- 13) **Choice A is correct.** (8.EE.C.7) FOIL: $(3x - 2)(x - 4) = 3x^2 - 12x - 2x + 8 = 3x^2 - 14x + 8$.
- 14) **The correct answer is 5.** (8.EE.C.7a) Solve $45 + 5q \geq 70$, giving $q \geq 5$. The minimum whole number is 5.
- 15) **Choice B is correct.** (8.F.B.5) From 1 to 3: change = $(0 - 2)/(3 - 1) = -1$ per unit. From 3 to 5: change = $(3 - 0)/(5 - 3) = 1.5$ per unit (positive). The interval $[1, 3]$ has slope -1 , the steepest negative.
- 16) **Choice B is correct.** (8.G.A.2) Congruent parallelograms have equal corresponding sides and angles. Side MN corresponds to side QR , so $QR = 10$ cm. Angle M corresponds to angle Q , so $\angle Q = 65^\circ$.
- 17) **Choice C is correct.** (8.G.B.6, 8.G.B.7) Check option C: $9^2 + 12^2 = 81 + 144 = 225 = 15^2$. This is the 3-4-5 triple scaled by 3.
- 18) **The correct answer is A, B.** (8.EE.B.6) Options A and B both have slope 4, making them parallel. Option C has slope -4 , option D has slope $\frac{1}{4}$, and option E has slope 2, so none of these match.
- 19) **Choice A is correct.** (8.G.B.7) Co-interior angles are supplementary. So $u = 180 - 106 = 74^\circ$.
- 20) **Choice B is correct.** (8.G.B.7) $B = 10 \times 7 = 70 \text{ ft}^2$. $V = \frac{1}{3} \times 70 \times 12 = 280 \text{ ft}^3$.
- 21) **Choice B is correct.** (8.SP.A.1) When points cluster tightly around a line, the correlation is stronger. When points are widely scattered, the correlation is weaker. Students should judge strength by how closely points cluster around an imaginary trend line.
- 22) **Choice A is correct.** (8.SP.A.4) The correct denominator for row-conditional frequency is the row total (196), not the column total (112). The student selected the column 'Vegetarian' total by mistake.
- 23) **Choice D is correct.** (8.G.B.7) Numbers less than 4: 1, 2, 3. Rolling a 2 is already included in that set. So favorable outcomes: 1, 2, 3 = 3 outcomes. $P = \frac{3}{6} = \frac{1}{2}$.
- 24) **Choice B is correct.** (8.EE.C.7b) Choose a main dish (5 options) and a side (3 options): $5 \times 3 = 15$ different meals.
- 25) **The correct answer is 4.** (8.G.A.1) Reflections preserve side lengths. The reflected side has the same length as the original, which is 4 units.
- 26) **Choice D is correct.** (8.SP.A.2) The data shows steep growth early, flattening near age 15–16. This reflects human biology: rapid growth during childhood and early teens, then plateauing as growth ends in adulthood.



Hi, Brave Learner!

◇ No one gets stronger by only doing easy problems. The questions that slowed you down were part of the training. This broad and demanding book gave you seven strong Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Mistakes are not proof that you cannot do math. They are directions. They show what to review, what to ask about, and what to practice next. ★

How to Use Mistakes

- **Name It:** Was it reading, setup, arithmetic, or checking?
- **Fix It:** Correct the work while the question is fresh.
- **Repeat It:** Try one similar problem soon.
- **Remember It:** Write the lesson in your own words.

Grade 8 test-day tip: Treat every corrected error as a point you are preparing to earn next time.

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

Jay Daie

Your Brave-Learning 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! |



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BUILD CONFIDENCE. SHARPEN SKILLS. ACE YOUR EXAM!