

7

Wyoming WY TOPP

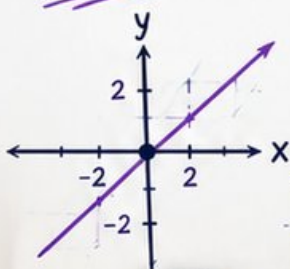
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

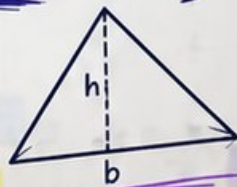
$$y = mx + b$$



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

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



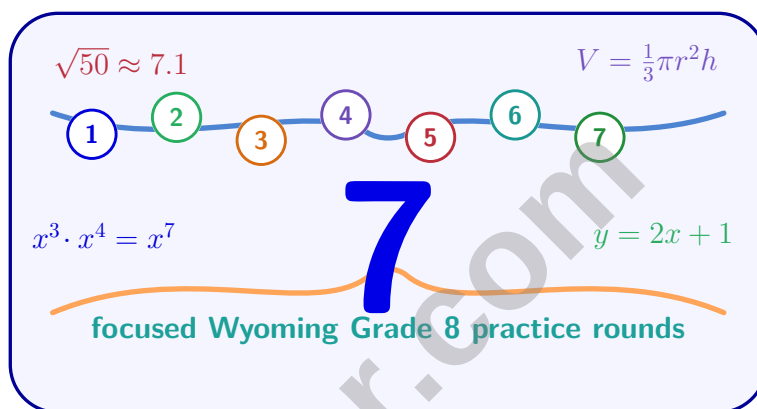
2 ONLINE
TESTS



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

7 Wyoming WY TOPP Grade 8 Math Practice Tests

WY TOPP Practice Across Seven Grade 8 Math Readiness Rounds



Seven complete 40-question Grade 8 WY TOPP 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, Wyoming Grade 8 Problem Solver!

Seven focused rounds for sharper WY TOPP math thinking

This book gives you seven full Grade 8 WY TOPP 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 Wyoming 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.

Wyoming 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 WY TOPP 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.



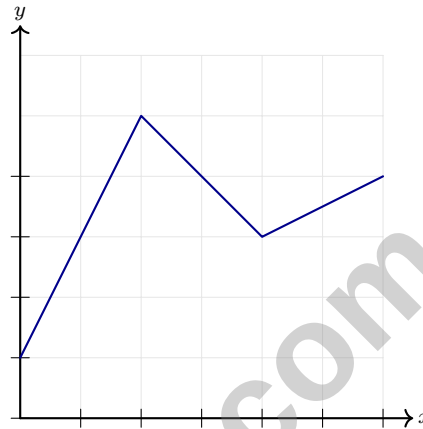
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- 1) A rope's length decreases at a constant rate. After 10 hours, it is 40 meters long. After 30 hours, it is 20 meters long. At what hour will the rope be 0 meters?

- ☐ A. 40 hours ☐ C. 60 hours
☐ B. 70 hours ☐ D. 50 hours



2)

Identify the maximum value and where it occurs.

- ☐ A. Max = 1 at $x = 4$ ☐ C. Max = 3 at $x = 1$
☐ B. Max = 3 at $x = 2$ ☐ D. Max = 4 at $x = 6$

- 3) Which statement is true about the exterior angles of any convex polygon?

- ☐ A. Each exterior angle measures less than 90° . ☐ C. Exterior angles are always equal in any polygon.
☐ B. The sum of all exterior angles is always 360° . ☐ D. The sum depends on the number of sides.



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4) Factor completely: $6x^2 + 12x + 6$.

☐ A. $6(x^2 + 2x + 1)$

☐ C. $2(3x^2 + 6x + 3)$

☐ B. $6(x + 1)^2$

☐ D. $3(2x + 2)^2$

5) A student claims: "If legs are a and b , then hypotenuse $= a \times b$." Is this correct?

☐ A. Yes, the formula is correct

☐ C. No; the correct formula is $c = a + b$

☐ B. No; the correct formula is $c = \sqrt{a^2 + b^2}$

☐ D. No; the correct formula is $c = \sqrt{a + b}$

6) A model car is 12 cm long. The actual car is 4.8 m long. What is the scale factor from the model to the actual car?

☐ A. 40

☐ C. 0.4

☐ B. 4

☐ D. 0.25

7) 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

☐ B. Should have shaded ABOVE the line

☐ D. Should have used the inequality $y < x$

8) A pyramid with height 12 cm has a volume of 396 cm^3 . What is the area of its base?

☐ A. 33 cm^2

☐ C. 99 cm^2

☐ B. 66 cm^2

☐ D. 132 cm^2



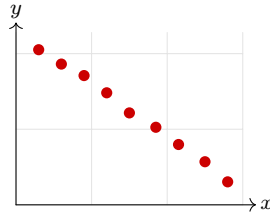
- 9) A decorative shape consists of a circle (radius 5 cm) with four congruent right triangles arranged around it (each with legs 3 cm and 4 cm). What is the total area? Use $\pi \approx 3.14$.

☐ A. 66.5 cm^2

☐ C. 102.5 cm^2

☐ B. 90.5 cm^2

☐ D. 147.5 cm^2



10)

A scatter plot shows a clear downward trend from upper left to lower right. The points cluster tightly around the trend line. Which conclusion is correct?

☐ A. As one variable increases, the other tends to increase

☐ C. As one variable increases, the other tends to decrease

☐ B. This is a weak negative relationship

☐ D. The relationship is curved, not linear

- 11) Solve for m : $\frac{m}{5} - 2 = 3$. Show all work and verify your solution.



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1) 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

2) Which line is perpendicular to $y = \frac{1}{2}x - 3$?

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

3) Calculate $\frac{9.6 \times 10^8}{3.2 \times 10^5}$ and express in scientific notation.

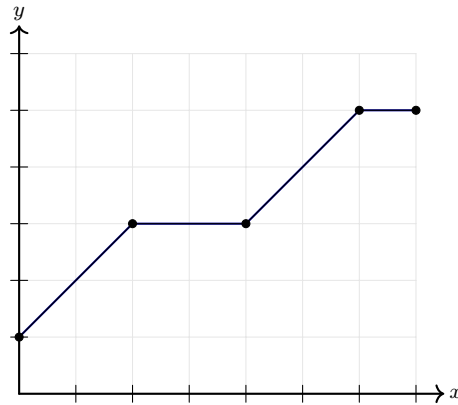
4) Which is the solution to $4(2x - 1) = 3x + 9$?

- ☐ A. $x = 1$ ☐ C. $x = \frac{13}{5}$
- ☐ B. $x = 3$ ☐ D. $x = -5$

5) Solve: $-3(x - 2) \leq 9$

- ☐ A. $x \leq -1$ ☐ C. $x \geq -1$
- ☐ B. $x \leq 1$ ☐ D. $x \geq 1$





6)

Identify all intervals where the function is increasing.

- ☐ A. $[0, 2]$ only
☐ B. $[0, 2]$ and $[4, 6]$
☐ C. $[2, 4]$ and $[4, 6]$
☐ D. $[0, 2]$, $[4, 6]$, and $[6, 7]$

7) A polygon has an interior angle sum of 1260° . How many sides does it have?

- ☐ A. 9
☐ B. 8
☐ C. 7
☐ D. 10

8) Factor $x^2 - 25$.

- ☐ A. $(x - 5)^2$
☐ B. $(x + 5)^2$
☐ C. $(x + 5)(x - 5)$
☐ D. $(x - 25)(x + 1)$

9) Which table represents a function where the output is always greater than the input?

Table A:

x	1	2	3	4
y	3	5	7	9

Table B:

x	0	1	2	3
y	0	2	4	6

- ☐ A. Neither table.
☐ B. Table A only.
☐ C. Table B only.
☐ D. Both tables.



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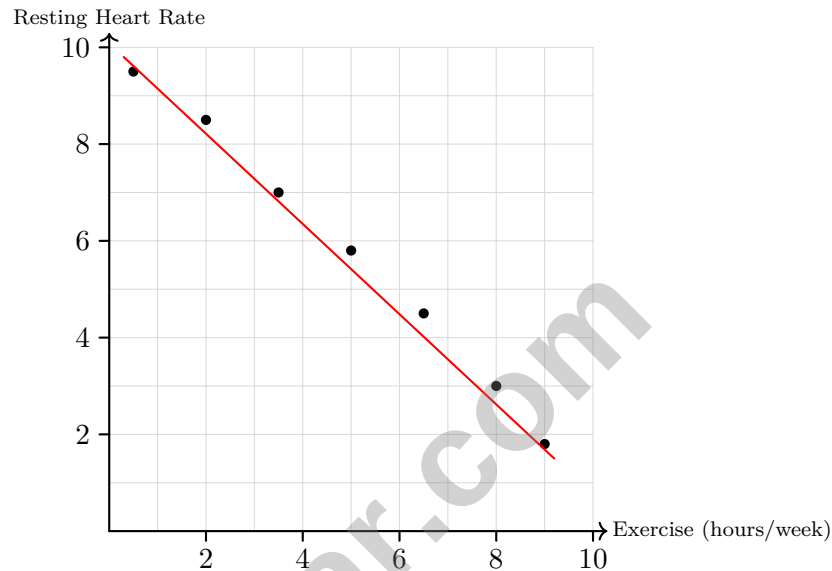
1) Is π^2 closer to 9 or 10?

☐ A. Closer to 9

☐ C. Exactly 9.5

☐ B. Cannot be determined

☐ D. Closer to 10



2)

The scatter plot shows a strong negative relationship between exercise and resting heart rate. Which statement is most accurate?

☐ A. Lower heart rates prevent people from exercising

☐ C. People with higher heart rates exercise less on average

☐ B. Exercise has no effect on heart rate

☐ D. More exercise causes lower heart rates

3) A fair coin is flipped and a standard six-sided die is rolled. What is the probability of getting heads AND a 4?

☐ A. $\frac{1}{12}$

☐ C. $\frac{1}{8}$

☐ B. $\frac{1}{6}$

☐ D. $\frac{2}{3}$



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4) A login code uses 3 distinct digits from the set $\{0, 1, 2, 3, 4, 5\}$. How many codes are possible?

☐ A. $6 + 5 + 4 = 15$

☐ C. $6^3 = 216$

☐ B. $6 \times 5 \times 4 = 120$

☐ D. $\binom{6}{3} = 20$

5) Which pair of irrational numbers, when multiplied, produces a rational number?

☐ A. $\sqrt{3} \times \sqrt{5}$

☐ C. $\sqrt{6} \times \sqrt{10}$

☐ B. $\sqrt{7} \times \sqrt{11}$

☐ D. $\sqrt{2} \times \sqrt{8}$

6) Convert $0.9\overline{3}$ to a fraction in simplest form.

☐ A. $\frac{93}{100}$

☐ C. $\frac{93}{99}$

☐ B. $\frac{9}{30}$

☐ D. $\frac{84}{90} = \frac{14}{15}$

7)

Candidate	Square
9.3	86.49
9.4	88.36

$\sqrt{88}$ is between 9 and 10. Is it closer to 9.3 or 9.4?

☐ A. 9.3

☐ C. Equally close

☐ B. Cannot determine

☐ D. 9.4

8) A point on a coordinate grid is at distance $\sqrt{50}$ from the origin. If one coordinate is 5, what is the other coordinate?



Wyoming WY TOPP 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 Wyoming WY TOPP practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.F.F.4A) Slope = $\frac{20 - 40}{30 - 10} = \frac{-20}{20} = -1$ m/h. Using (30, 20) with slope -1 : $0 = 20 - 1(t - 30)$, so $t = 50$.
- 2) **Choice B is correct.** (8.F.F.5) The highest point on the graph is at the second vertex, (2, 3). All other points are lower.
- 3) **Choice B is correct.** (8.G.G.5) The sum of exterior angles of any convex polygon is always 360° , regardless of shape or number of sides.
- 4) **Choice B is correct.** (8.EE.D.7) GCF is 6: $6x^2 + 12x + 6 = 6(x^2 + 2x + 1) = 6(x + 1)^2$.
- 5) **Choice B is correct.** (8.G.H.6, 8.G.H.7) The student is confusing the Pythagorean Theorem with multiplication. For legs 3 and 4: $3 \times 4 = 12$ is incorrect, but $\sqrt{3^2 + 4^2} = \sqrt{25} = 5$ is correct.
- 6) **Choice A is correct.** (8.G.G.4) Convert to same units: 4.8 m = 480 cm. Scale factor is $\frac{480}{12} = 40$.
- 7) **Choice B is correct.** (8.EE.D.7) For $y \geq x$, the solution region is above the line. The boundary is solid because the inequality includes equality.
- 8) **Choice C is correct.** (8.G.I.9) $396 = \frac{1}{3} \times B \times 12 \Rightarrow B = \frac{396 \times 3}{12} = \frac{1188}{12} = 99$ cm².
- 9) **Choice C is correct.** (8.G.I.9) Circle area = $\pi r^2 = 3.14 \times 5^2 = 78.5$ cm². Each triangle area = $\frac{1}{2} \times 3 \times 4 = 6$ cm². Four triangles = 24 cm². Total = $78.5 + 24 = 102.5$ cm².
- 10) **Choice C is correct.** (8.SP.J.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.
- 11) **The correct answer is $m = 25$.** (8.EE.D.7B) Add 2 to both sides: $\frac{m}{5} = 5$. Multiply both sides by 5: $m = 25$. Verify: $\frac{25}{5} - 2 = 5 - 2 = 3 \checkmark$.
- 12) **Choice A is correct.** (8.F.E.2) Slope = $(0 - 12)/(3 - 0) = -12/3 = -4$.
- 13) **Choice A is correct.** (8.F.E.3) The y -values are 5, 11, 17, 23. The differences are $11 - 5 = 6$, $17 - 11 = 6$, and $23 - 17 = 6$. Because the difference is constant for equal steps in x , the function is linear.
- 14) **The correct answer is -4 .** (8.EE.D.7) Solving gives $x \geq -4$, so the boundary value is -4 .
- 15) **Choice A is correct.** (8.F.F.4C) y -intercept is 5 at (0, 5). Slope: $\frac{13 - 5}{2 - 0} = \frac{8}{2} = 4$. Equation: $y = 4x + 5$.
- 16) **Choice A is correct.** (8.G.G.2) Since the pentagons are congruent, pentagon PQRST has the same properties as JKLMN: all sides are equal and all interior angles measure 108° . This makes it a regular pentagon.
- 17) **Choice C is correct.** (8.G.G.3) The rule $(x, y) \rightarrow (-x, -y)$ describes a 180° rotation about the origin. So (3, 5) $\rightarrow$ $(-3, -5)$.
- 18) **The correct answer is $(-2, 2)$.** (8.G.G.1) Step 1: Reflect across y -axis: $(2, 5) \rightarrow (-2, 5)$. Step 2: Translate 3 down: $(-2, 5) \rightarrow (-2, 2)$.
- 19) **Choice A is correct.** (8.G.G.5) Alternate exterior angles are congruent when lines are parallel.
- 20) **Choice B is correct.** (8.G.H.8) Distance = $\sqrt{(5 - 0)^2 + (12 - 0)^2} = \sqrt{25 + 144} = \sqrt{169} = 13.0$. (This is a 5-12-13 Pythagorean triple.)
- 21) **Choice B is correct.** (8.G.H.7) Corresponding angles are congruent when a transversal cuts parallel lines. So $x = 78^\circ$.
- 22) **The correct answer is A, B.** (8.EE.C.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.
- 23) **Choice D is correct.** (8.SP.J.4) Marginal relative frequency for takeout: $\frac{325}{500} = 0.65$.
- 24) **Choice A is correct.** (8.G.H.8) Absolute deviations: $|2 - 4.5| = 2.5$ (twice), $|4 - 4.5| = 0.5$ (three times), $|6 - 4.5| = 1.5$ (twice), $|8 - 4.5| = 3.5$. Sum = $5 + 1.5 + 3 + 3.5 = 13$. MAD = $13/8 = 1.625$.
- 25) **Choice A is correct.** (8.EE.B.4) Each section is equal, so each has probability $\frac{1}{4}$.
- 26) **Choice B is correct.** (8.NS.A.1C) Multiply independent choices: 3 styles $\times$ 5 colors $\times$ 4 designs $\times$ 2 engines = 120 configurations.



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You Are Building Test Stamina

Hi, Stamina Builder!

◇ This broad and demanding book gave you seven strong Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Completing practice tests builds more than math knowledge. It builds the focus needed to think clearly for a long stretch. ◇

★ **Remember this:** That stamina matters. On real test day, calm pacing can be just as important as remembering a formula. ★

Stamina Skills

- **Breathe:** Reset before a difficult page.
- **Pace:** Do not spend too long in one place.
- **Return:** Come back to skipped questions with fresh eyes.
- **Finish Strong:** Use the last minutes to check.

Grade 8 test-day tip: Practice a simple reset: pause, breathe, reread, then choose your next step.

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

Jay Daie

Your Test-Stamina 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!