

WYOMING

WY TOPP

GRADE 8 MATH

PRACTICE TESTS

5

PRINTED
TESTS

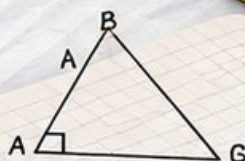


2 ONLINE
TESTS

**Standards Aligned
Problem Solving For**
Comprehensive Assessment Programs



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

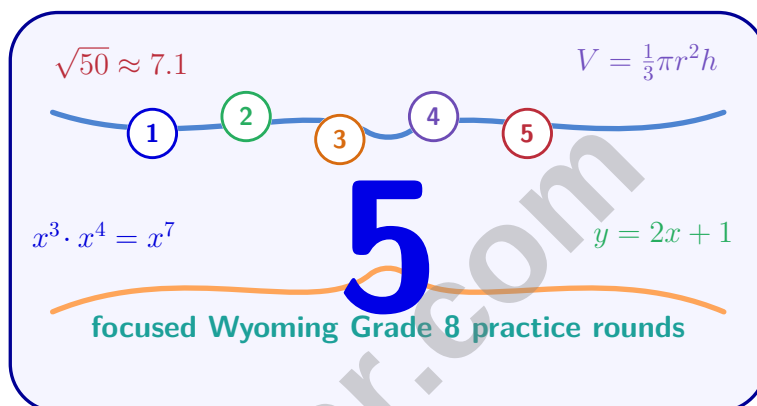


$$a^2 + b^2 = c^2$$



5 Wyoming WY TOPP Grade 8 Math Practice Tests

Five WY TOPP Practices for Algebra, Models, and Problem Solving



Five 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!

Five focused rounds for sharper WY TOPP math thinking

This book gives you five 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 five-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?

Five WY TOPP tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–5	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.



Scan me!
For more practice
& answers

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1) 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.

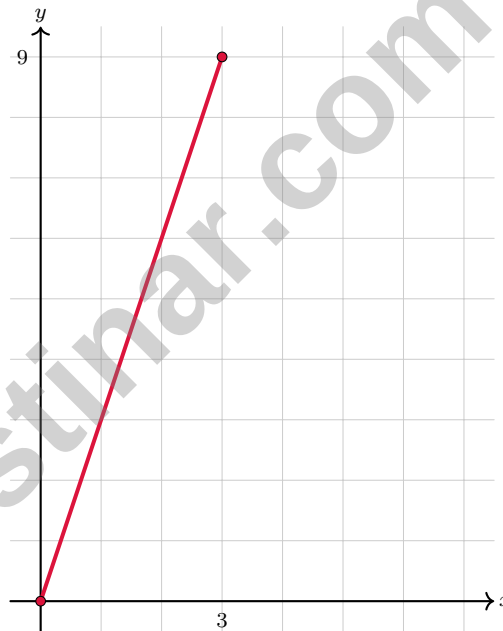
2) Solve:
$$\begin{cases} y = \frac{1}{3}x + 2 \\ y = -\frac{2}{3}x + 5 \end{cases}$$

☐ A. $(2, 7/3)$

☐ C. $(1, 7/3)$

☐ B. $(4, 10/3)$

☐ D. $(3, 3)$



3)

What is the slope?

☐ A. 2

☐ C. $\frac{1}{3}$

☐ B. $\frac{9}{2}$

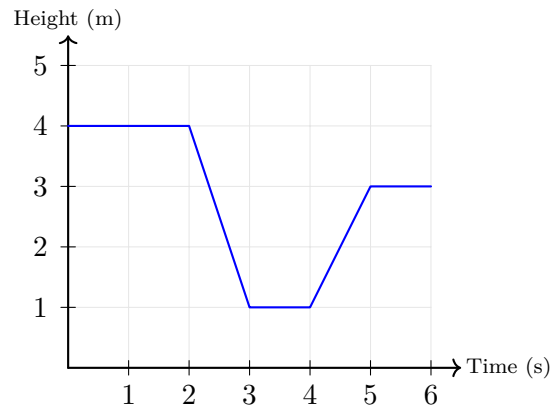
☐ D. 3



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- 4) A swimming pool is being drained. The water level drops $\frac{1}{2}$ foot every $\frac{1}{4}$ hour. What is the slope?
- ☐ A. -2 feet per hour ☐ C. $-\frac{1}{8}$ feet per hour
☐ B. 2 feet per hour ☐ D. $\frac{1}{8}$ feet per hour
- 5) Sarah is 5 years older than Tom. In 5 years, the sum of their ages will be 45. How old is Tom now?
- ☐ A. 12 ☐ C. 15
☐ B. 18 ☐ D. 20
- 6) If $h(x) = -x + 4$, what is $h(1)$?
- ☐ A. 3 ☐ C. -3
☐ B. 5 ☐ D. 4
- 7) A gym charges a \$25 sign-up fee plus \$15 per month. Which function gives the total cost C after m months?
- ☐ A. $C = 15m + 25$ ☐ C. $C = 40m$
☐ B. $C = 25m + 15$ ☐ D. $C = 15m - 25$



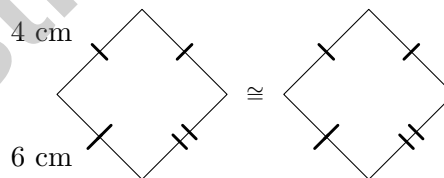


8)

A toy platform follows the height-time graph shown. Which description is accurate?

- ☐ A. The object goes up constantly, then down, then flat
☐ B. The object stays level, drops, stays level, rises, stays level
☐ C. The object increases, then decreases throughout
☐ D. The object decreases in height initially

9) Two congruent kites are shown with matching tick marks. In Kite 1, two adjacent sides each measure 4 cm, and the other two adjacent sides each measure 6 cm. What are the side lengths of Kite 2?



- ☐ A. 2 cm, 2 cm, 3 cm, 3 cm
☐ B. 4 cm, 4 cm, 6 cm, 6 cm
☐ C. 8 cm, 8 cm, 12 cm, 12 cm
☐ D. 5 cm, 5 cm, 7 cm, 7 cm



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- 1) Two stores sell notebooks. Store A: 4 notebooks for \$8. Store B: 5 notebooks for \$12. Which has the lower unit price?

☐ A. Store A (\$2.40 each) ☐ C. Store A (\$2 each)
☐ B. Store B (\$2.40 each) ☐ D. Same price

- 2) A system of two linear equations has no solution. Which statement must be true?

☐ A. Both lines have the same y -intercept ☐ C. The lines have the same slope and different y -intercepts
☐ B. Both slopes are negative ☐ D. The lines are perpendicular

- 3) A student claims: "If input 5 appears three times in a table, it cannot be a function." Is the student correct?

☐ A. Yes, any repeated input means it is not a function. ☐ C. No, repeated inputs are only a problem if outputs differ.
☐ B. No, repeated inputs are never a problem. ☐ D. Yes, the domain cannot have repeated values.



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- 4) A graph shows medication concentration (mg) in the bloodstream versus time (hours). The line passes through (0, 50) and (8, 10).



What is the slope?

- ☐ A. -5 mg/h ☐ C. 5 mg/h
☐ B. $-\frac{1}{2}$ mg/h ☐ D. $\frac{1}{2}$ mg/h
- 5) A water tank contains saltwater at 2% concentration. To reduce the concentration to 1%, how much pure water must be added to 100 liters of the 2% solution?

- ☐ A. 50 L ☐ C. 100 L
☐ B. 75 L ☐ D. 150 L



- 1) A cube with edge 2 m is attached to a rectangular prism with dimensions $4 \times 2 \times 2$ m (where the cube shares a 2×2 face). If we ignore the shared face, what is the total surface area of the composite solid?

☐ A. 40 m^2 ☐ C. 64 m^2
☐ B. 56 m^2 ☐ D. 72 m^2

- 2) Rewrite 6^{-3} using only positive exponents.

☐ A. $\frac{6}{3}$ ☐ C. 6^3
☐ B. -6^3 ☐ D. $\frac{1}{6^3}$

- 3) Estimate $\sqrt{99}$ to the nearest integer.

☐ A. 8 ☐ C. 10
☐ B. 9 ☐ D. 11

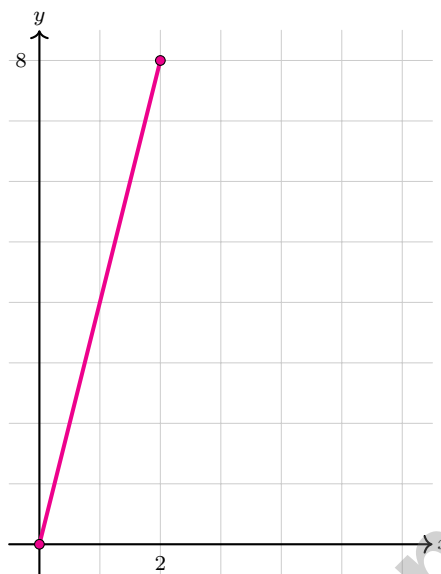
- 4) $(4.5 \times 10^{-6}) \times (2 \times 10^{-4}) = ?$

☐ A. 9×10^{-2} ☐ C. 9×10^{-10}
☐ B. 6.5×10^{-10} ☐ D. 9×10^{24}

- 5) Express 356,000 in scientific notation.



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6)

Which equation represents this line?

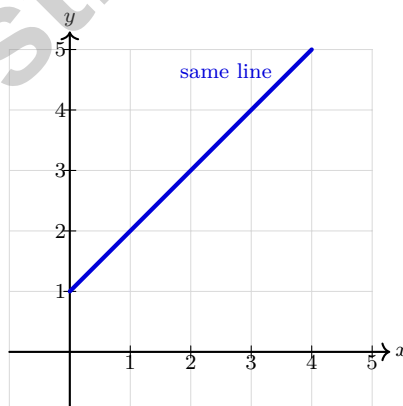
☐ A. $y = 2x$

☐ C. $y = 6x$

☐ B. $y = 8x$

☐ D. $y = 4x$

7) The graph below shows two lines. Does the system have a solution? If so, is it unique, or are there infinitely many?



☐ A. No solution

☐ C. Infinitely many solutions

☐ B. Unique solution at $(2, 3)$

☐ D. Two distinct solutions



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 C is correct.** (8.F.E.1) A point has one x -value with one y -value, so it passes the vertical line test. A vertical line is not a function (fails VLT). Circles and ellipses fail the VLT.
- 2) **Choice D is correct.** (8.EE.D.8A) Set the expressions equal: $\frac{1}{3}x + 2 = -\frac{2}{3}x + 5$. Add $\frac{2}{3}x$ to both sides: $x + 2 = 5$, so $x = 3$. Then $y = \frac{1}{3}(3) + 2 = 3$. Solution: $(3, 3)$.
- 3) **Choice D is correct.** (8.EE.C.5) Slope = $\frac{9-0}{3-0} = \frac{9}{3} = 3$. The rise is 9 and the run is 3, so the slope is 3.
- 4) **Choice A is correct.** (8.F.F.4A) Slope = $\frac{-1/2 \text{ foot}}{1/4 \text{ hour}} = \frac{-1/2}{1/4} = -\frac{1}{2} \times \frac{4}{1} = -2$ feet per hour.
- 5) **Choice C is correct.** (8.EE.D.8C) Let t = Tom's current age. Sarah's current age is $t + 5$. In 5 years, their ages are $t + 5$ and $t + 10$, so $(t + 5) + (t + 10) = 45$. Then $2t + 15 = 45$, so $t = 15$.
- 6) **Choice A is correct.** (8.F.F.4) Substitute $x = 1$: $h(1) = -(1) + 4 = -1 + 4 = 3$.
- 7) **Choice A is correct.** (8.F.F.4C) The sign-up fee \$25 is a one-time cost (the y -intercept, the value when $m = 0$). The monthly rate \$15 is the slope (rate of change per month). Therefore, $C = 15m + 25$. The slope tells how much additional cost per month; the intercept tells the starting cost.
- 8) **Choice B is correct.** (8.F.F.5) From 0 to 2s: flat (height constant at 4m). From 2 to 3s: the height drops to 1m. From 3 to 4s: flat at 1m. From 4 to 5s: the height rises to 3m. From 5 to 6s: flat at 3m.
- 9) **Choice B is correct.** (8.G.G.2) Congruent figures have equal corresponding sides. Kite 2 has the same side lengths as Kite 1: 4 cm, 4 cm, 6 cm, 6 cm.
- 10) **Choice B is correct.** (8.G.G.3) $D' = (8, 10)$. Distance: $\sqrt{8^2 + 10^2} = \sqrt{64 + 100} = \sqrt{164} = 2\sqrt{41}$.
- 11) **Choice B is correct.** (8.G.G.5) The angles sum to 180° : $(n + 15) + (n + 20) + (2n + 25) = 180$. Thus $4n + 60 = 180$, so $4n = 120$ and $n = 30$.
- 12) **Choice B is correct.** (8.G.H.6, 8.G.H.7) Check: $36 + 64 = 100$ but $81 \neq 100$. The converse of the Pythagorean Theorem confirms this is not a right triangle.
- 13) **Choice C is correct.** (8.G.H.8) $d = \sqrt{40^2 + 9^2} = \sqrt{1600 + 81} = \sqrt{1681} = 41$ m.
- 14) **Choice C is correct.** (8.G.H.7) Angles on a straight line sum to 180° . So $x + (x + 15) + (2x - 15) = 180$, which gives $4x = 180$ and $x = 45^\circ$.
- 15) **Choice B is correct.** (8.G.I.9) $B = x \times 3x = 3x^2$. $500 = \frac{1}{3} \times 3x^2 \times 5 \Rightarrow 500 = 5x^2 \Rightarrow x^2 = 100 \Rightarrow x = 10$ m.
- 16) **Choice C is correct.** (8.G.I.9) Triangle = $\frac{1}{2} \times 6 \times 8 = 24 \text{ in}^2$. Rectangle = $6 \times 2 = 12 \text{ in}^2$. Total = $24 + 12 = 36 \text{ in}^2$.
- 17) **The correct answer is 20.** (8.EE.D.7) Compute $9(2)^2 - 16 = 36 - 16 = 20$.
- 18) **The correct answer is A,B.** (8.EE.B.3) Division rule: divide coefficients ($6.4 \div 1.6 = 4$, choice A) and subtract exponents ($-3 - (-5) = 2$, choice B). This gives 4×10^2 . Choice C is wrong, choice D incorrectly adds exponents, and choice E has the wrong exponent sign.
- 19) **Choice B is correct.** (8.G.G.5) Sum of angles in a pentagon is 540° . Sum of known: $80 + 105 + 125 + 115 = 425^\circ$. Fifth angle: $540 - 425 = 115^\circ$.
- 20) **Choice D is correct.** (8.SP.J.1) The pattern shows: high experience (right) $\rightarrow$ low reaction time (bottom), and low experience (left) $\rightarrow$ high reaction time (top). This is a negative association: as one increases, the other decreases.
- 21) **Choice C is correct.** (8.SP.J.4) Relative frequency of returning customers among sale-item transactions: $\frac{245}{350} = 0.70 = 70\%$.
- 22) **Choice B is correct.** (8.NS.A.1C) Apply the Counting Principle to all three independent factors: $3 \times 2 \times 4 = 24$ different variations.
- 23) **Choice A is correct.** (8.G.H.8) Mean = 10.4. Deviations: 0.4, 0.6, 0.4, 0.6, 0.4. MAD = $(0.4 + 0.6 + 0.4 + 0.6 + 0.4)/5 = 2.4/5 = 0.48 < 1$. Set A clusters within 0.6 of the mean, so small MAD. Other sets are more spread.
- 24) **Choice C is correct.** (8.SP.J.2) A line of best fit minimizes the overall distance between itself and the data points, capturing the general trend. It rarely passes through every point.
- 25) **Choice B is correct.** (8.G.G.4) Multiply each coordinate by the scale factor: $(2 \times 2, 3 \times 2) = (4, 6)$.
- 26) **The correct answer is 1.** (8.F.E.2) Slope of f : 2. Other slope: $(7 - 1)/2 = 3$. Difference: $3 - 2 = 1$.



Hi, Persistent Problem Solver!

◇ Some Grade 8 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 8 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 8 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

Practice Today. Succeed Tomorrow!

Give your child the confidence and skills they need with **5 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!



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.

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! |

5
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