

9

Wyoming

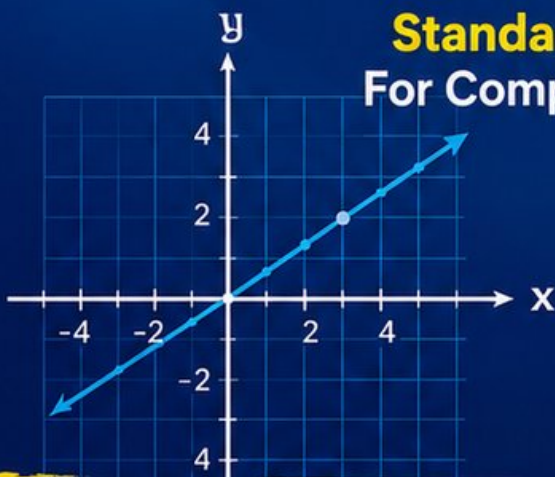
WY TOPP

Grade 8

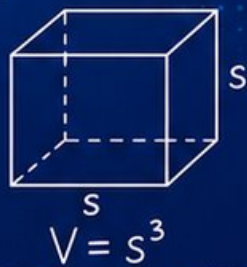
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



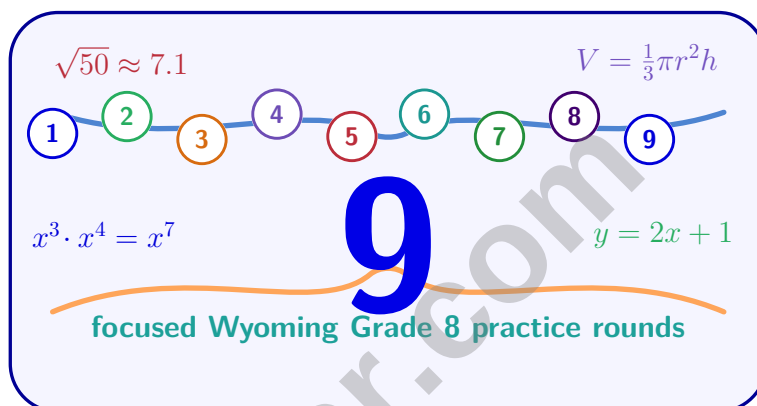
$$2x + 3y = 12$$
$$y = mx + b$$

**9** PRINTED
TESTS**2** ONLINE
TESTS

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

9 Wyoming WY TOPP Grade 8 Math Practice Tests

Standards-Based Wyoming Practice with Review, Answer Keys, and Explanations



Nine 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!

Nine focused rounds for sharper WY TOPP math thinking

This book gives you nine 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 nine-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?

Nine WY TOPP tests, 360 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.
Tests 7–9	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 student claims the line through $(1, 3)$ and $(3, 6)$ has slope $\frac{2}{3}$. What error did the student make?

- ☐ A. Inverted the slope as $\frac{\Delta x}{\Delta y}$
☐ B. Subtracted incorrectly

- ☐ C. Used $(1, 3)$ twice
☐ D. Used the y -intercept as the slope

2) When a figure is rotated 270° counterclockwise about the origin, the transformation rule is:

- ☐ A. $(x, y) \rightarrow (y, -x)$
☐ B. $(x, y) \rightarrow (-y, x)$

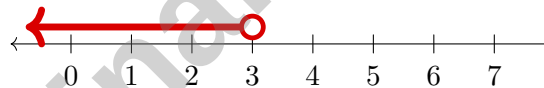
- ☐ C. $(x, y) \rightarrow (-x, -y)$
☐ D. $(x, y) \rightarrow (y, x)$

3) Solve for y : $-4y + 7 = 15$

- ☐ A. $y = -8$
☐ B. $y = 8$

- ☐ C. $y = 2$
☐ D. $y = -2$

4) Graph the solution to $x + 4 < 7$ on a number line.



The inequality is:

- ☐ A. $x < 3$
☐ B. $x > 3$

- ☐ C. $x \leq 3$
☐ D. $x \geq 3$

5) Which is the best estimate of $\pi - \sqrt{2}$?

- ☐ A. 0.8
☐ B. 1.2

- ☐ C. 1.7
☐ D. 2.4

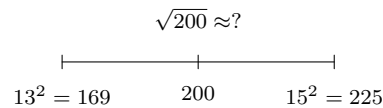


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- 6) Compare two accounts: Account A offers 4% simple interest for 5 years on \$1,000. Account B offers 3% compound interest annually for 5 years on \$1,000. Which earns more interest?

- ☐ A. Cannot determine ☐ C. They earn equal interest
☐ B. Account B (compound) ☐ D. Account A (simple)

- 7) Which is a reasonable approximation for $\sqrt{200}$?



- ☐ A. 12 ☐ C. 16
☐ B. 18 ☐ D. 14
- 8) $(7.8 \times 10^7) - (2.3 \times 10^6) = ?$
- ☐ A. 5.5×10^7 ☐ C. 5.5×10^6
☐ B. 5.5×10^1 ☐ D. 7.57×10^7
- 9) Explain why 10^5 is 100 times greater than 10^3 . Use exponents in your reasoning.



10)

x	y
-2	7
0	3
2	-1
4	-5

Which equation represents the relationship shown in the table?

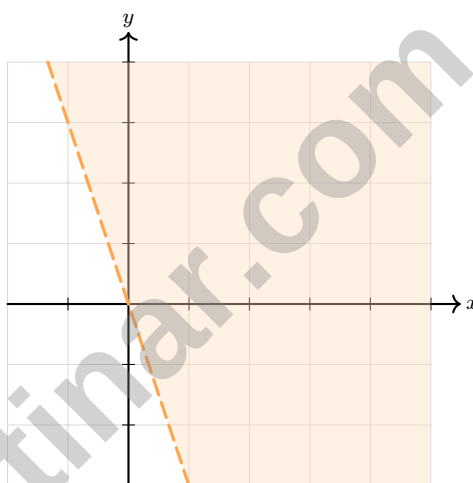
☐ A. $y = -2x + 3$

☐ C. $y = -x + 3$

☐ B. $y = 2x + 3$

☐ D. $y = 3x - 2$

11)



What inequality matches this graph?

☐ A. $y > -3x$

☐ C. $y \geq -3x$

☐ B. $y < -3x$

☐ D. $y \leq -3x$



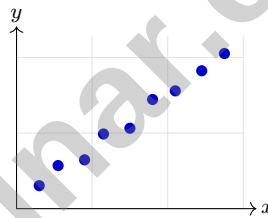
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1) A line passes through $(1, 3)$ and $(3, 7)$. Is this a linear relationship?

- ☐ A. No, the slope is not 1 ☐ C. Yes, a line is always linear
☐ B. No, because you need more than two points ☐ D. Yes, only if the slope is positive

2) Use the table to find the value of x if $f(x) = 7$.

x	0	1	2	3
$f(x)$	1	3	5	7

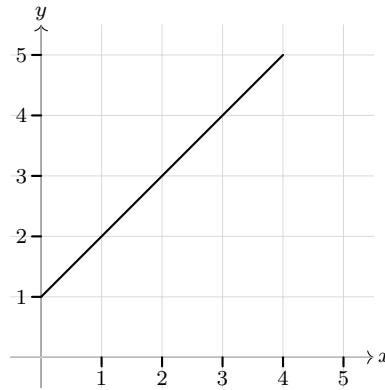


3)

A scatter plot shows hours of study and test scores for 30 students. As study hours increase, test scores also increase. What type of correlation does this show?

- ☐ A. Positive correlation ☐ C. No correlation
☐ B. Negative correlation ☐ D. Causal relationship





4)

What is the slope of the line shown in the graph?

☐ A. $\frac{1}{2}$

☐ B. 2

☐ C. 1

☐ D. 4.5

5) A pyramid is half-filled with sand. The pyramid's total volume is 360 ft^3 . How much sand is in the pyramid?

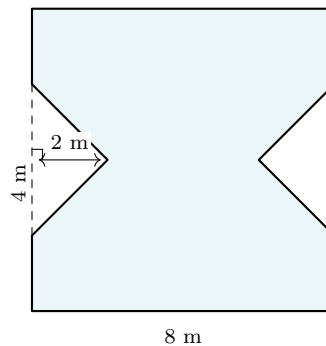
☐ A. 90 ft^3

☐ B. 120 ft^3

☐ C. 180 ft^3

☐ D. 240 ft^3

6) A composite figure has a square (8 m by 8 m) with two opposite triangular notches cut out (each 4 m base, 2 m height). What is the remaining area?



☐ A. 56 m^2

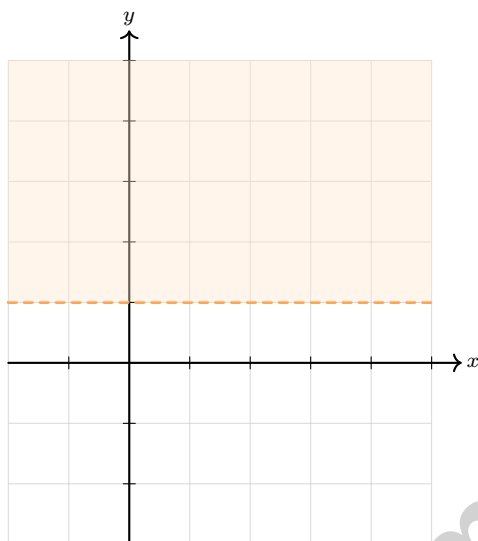
☐ B. 60 m^2

☐ C. 64 m^2

☐ D. 72 m^2



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1)

The graph shows a dashed horizontal line and shading above. The inequality is:

☐ A. $y > 1$

☐ C. $y \geq 1$

☐ B. $y < 1$

☐ D. $y \leq 1$

2) A regular hexagonal pyramid has a regular hexagonal base. The base has perimeter 24 cm and area $24\sqrt{3}$ cm². The slant height is 8 cm. What is the lateral surface area?

☐ A. 48 cm²

☐ C. 96 cm²

☐ B. 72 cm²

☐ D. 144 cm²

3) A cone has radius 9 cm and height 14 cm. Approximately, what is its volume? (Use $\pi \approx 3.14$.)

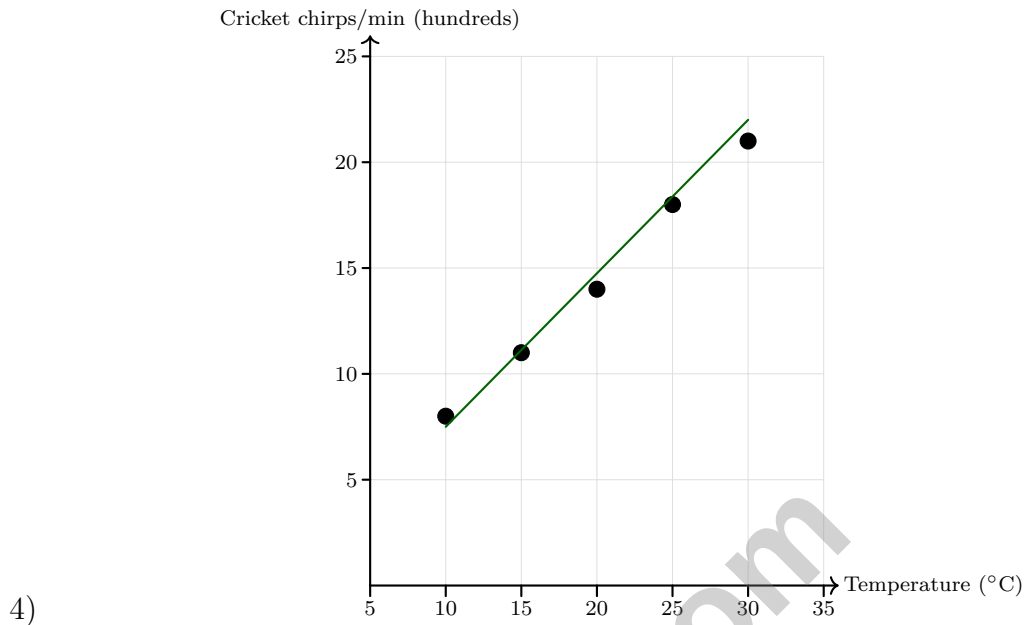
☐ A. 594.12 cm³

☐ C. 2373.84 cm³

☐ B. 1186.92 cm³

☐ D. 1782.36 cm³





Based on the scatter plot, as temperature increases by 5°C , cricket chirps increase by approximately how many (in hundreds)?

☐ A. 0.5 hundreds

☐ C. 1.5 hundreds

☐ B. 1 hundred

☐ D. 3 hundreds

5) Factor completely: $4x^2 + 16x + 16$.

☐ A. $4(x + 2)^2$

☐ C. $(2x + 2)^2$

☐ B. $4(x^2 + 4x + 4)$

☐ D. $4(x + 4)^2$



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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 A is correct.** (8.F.F.4C) Correct: $m = \frac{6-3}{3-1} = \frac{3}{2}$. The student used $\frac{\Delta x}{\Delta y} = \frac{2}{3}$ instead of $\frac{\Delta y}{\Delta x}$, so the rise and run were inverted.
- 2) **Choice A is correct.** (8.G.G.1) 270° counterclockwise equals 90° clockwise, using the rule $(x, y) \rightarrow (y, -x)$. Distractor B is 90° counterclockwise.
- 3) **Choice D is correct.** (8.EE.D.7B) Subtract 7: $-4y = 8$. Divide by -4 : $y = -2$.
- 4) **Choice A is correct.** (8.EE.D.7) Subtract 4: $x < 3$. The open circle and left-pointing ray show all numbers less than 3.
- 5) **Choice C is correct.** (8.NS.A.2) $\pi \approx 3.14$ and $\sqrt{2} \approx 1.41$, so $3.14 - 1.41 \approx 1.73$.
- 6) **Choice D is correct.** (8.EE.B.4) Account A: $I = 1000 \times 0.04 \times 5 = \200 . Account B: $A = 1000(1.03)^5 \approx 1159.27$, so interest $\approx \$159.27$. Account A earns more interest.
- 7) **Choice D is correct.** (8.EE.B.2A) $\sqrt{200} = \sqrt{100 \times 2} = 10\sqrt{2} \approx 10 \times 1.41 = 14.1$. So 14 is the closest integer.
- 8) **Choice D is correct.** (8.EE.B.3) Rewrite with common exponent: $7.8 \times 10^7 - 0.23 \times 10^7 = (7.8 - 0.23) \times 10^7 = 7.57 \times 10^7$.
- 9) **The correct answer is 100.** (8.EE.B.4) When dividing powers with the same base, subtract the exponents. $10^{5-3} = 10^2$, and $10^2 = 100$, so 10^5 is 100 times larger than 10^3 .
- 10) **Choice A is correct.** (8.EE.C.6) Slope = $\frac{3-7}{0-(-2)} = \frac{-4}{2} = -2$. When $x = 0$, $y = 3$, so $b = 3$. Thus $y = -2x + 3$.
- 11) **Choice A is correct.** (8.EE.D.7) The DASHED line and shading ABOVE indicate a strict inequality with y greater: $y > -3x$.
- 12) **The correct answer is 4.41.** (8.NS.A.1) Compute $3 + 1.41 = 4.41$.
- 13) **Choice A is correct.** (8.F.E.2) Correct slope: $(6 - 2)/(3 - 1) = 4/2 = 2$. The student got $\frac{1}{2}$ by putting the run over the rise. Slope is rise over run, so the error is inverting rise (4) and run (2).
- 14) **Choice A is correct.** (8.F.F.5) The graph is flat at 5 liters from hour 3 to hour 5, a duration of 2 hours.
- 15) **Choice B is correct.** (8.G.G.5) Using $\frac{(n-2) \times 180}{n} = 150$: $(n - 2) \times 180 = 150n \Rightarrow 180n - 360 = 150n \Rightarrow 30n = 360 \Rightarrow n = 12$.
- 16) **Choice C is correct.** (8.F.F.4) Correct answer: $\frac{x^8}{x^2} = x^{8-2} = x^6$, not x^4 . The student likely divided: $8 \div 2 = 4$.
- 17) **Choice D is correct.** (8.EE.C.5) Runner B has a larger constant of proportionality ($8 > 6$), so Runner B travels farther in the same time.
- 18) **Choice D is correct.** (8.EE.D.8A) Simplify the second equation: $2y = 2x + 4$ becomes $y = x + 2$, the same as the first equation. They represent the same line, so they intersect at infinitely many points.
- 19) **Choice A is correct.** (8.EE.D.7) Sum of regions: $x^2 + 6x - 2x - 12 = x^2 + 4x - 12$.
- 20) **Choice C is correct.** (8.F.E.1) Constant functions are functions. For every x , the output is always 7, satisfying the one-input-one-output requirement.
- 21) **Choice D is correct.** (8.F.E.3) $y = x^3$ has x raised to the power 3, making it nonlinear. The other three options are all linear (form $y = mx + b$).
- 22) **The correct answer is A,E.** (8.G.H.8) A is true because the distance formula applies the Pythagorean Theorem to the horizontal and vertical legs between two points. E is true because reversing the points only changes the signs of the differences, and squaring gives the same result. B and C are false because the formula works with positive or negative differences and coordinates. D is false because distances can be irrational, such as $\sqrt{50}$.
- 23) **Choice C is correct.** (8.G.G.2) A 90-degree counterclockwise rotation is a rigid motion that preserves all distances and angles. When triangle XYZ is rotated about the origin, each vertex moves but distances between vertices remain the same. Therefore, all corresponding sides and angles are equal: $XZ = X'Z'$, $XY = X'Y'$, $YZ = Y'Z'$, and all angles match.
- 24) **Choice B is correct.** (8.G.G.3) Reflection across the x -axis maps $(x, y) \rightarrow (x, -y)$. So $(2, 2) \rightarrow (2, -2)$, giving y -coordinate -2 .
- 25) **Choice D is correct.** (8.G.G.5) A 78° angle and its supplement is $180 - 78 = 102^\circ$. At the first intersection, there are 2 angles of 102° (vertical to each other). At the second intersection with the parallel line, there are also 2 angles of 102° (corresponding to those above). Total: 4 angles of 102° .



A Note for a Careful Thinker

Hi, Careful Thinker!

◇ This high-stamina book gave you nine substantial Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. This book gave you room to practice the kind of thinking eighth graders need: modeling linear relationships, solving systems, connecting algebra and geometry, and interpreting data. ◇

★ **Remember this:** The goal was never just to finish pages. The goal was to become the kind of student who knows how to begin, how to adjust, and how to check. ★

Your Careful-Thinking Toolkit

- **Read Twice:** First for the story, second for the math.
- **Label Values:** Give each number a job.
- **Check Signs:** Negatives and inequalities deserve attention.
- **Use Evidence:** Let the work prove the answer.

Grade 8 test-day tip: On test day, underline the question before solving. It keeps your answer aimed at the right target.

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

Jay Daie

Your Math Practice Coach

CONFIDENCE TODAY, SUCCESS TOMORROW!

GRADE

8

Help your child excel in math with **9 full-length Grade 8 practice tests** designed to reflect real test formats and cover all key math standards.

With a wide variety of questions and real-world applications, this book builds the skills and confidence students need to achieve their best!



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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Better **Results.**