

8

Wisconsin

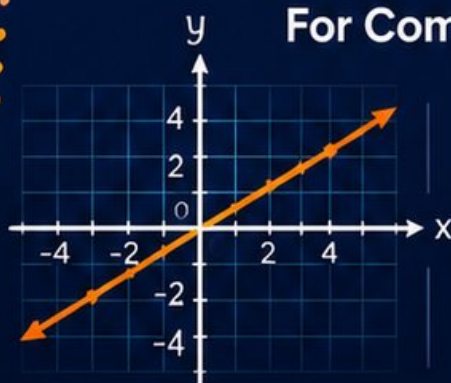
Forward Exam

GRADE 8

MATH

PRACTICE TESTS

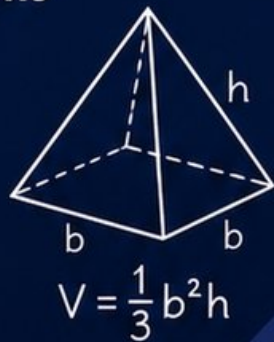
Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$

$$C = 2\pi r$$

$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}b^2 h$$



8

 PRINTED TESTS

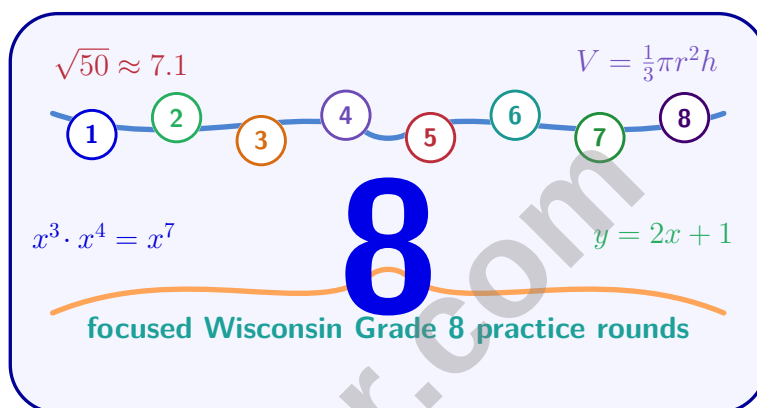
2

 ONLINE TESTS

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

8 Wisconsin Forward Exam Grade 8 Math Practice Tests

Wisconsin Practice for Functions, Geometry, Statistics, and Reasoning



Eight complete 40-question Grade 8 Forward Exam 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, Wisconsin Grade 8 Problem Solver!

Eight focused rounds for sharper Forward Exam math thinking

This book gives you eight full Grade 8 Forward Exam 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 Wisconsin 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

An eight-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.

Wisconsin 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?

Eight Forward Exam tests, 320 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 7–8	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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& answers

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1) Solve for x : $2(x + 3) = 3(x - 1)$

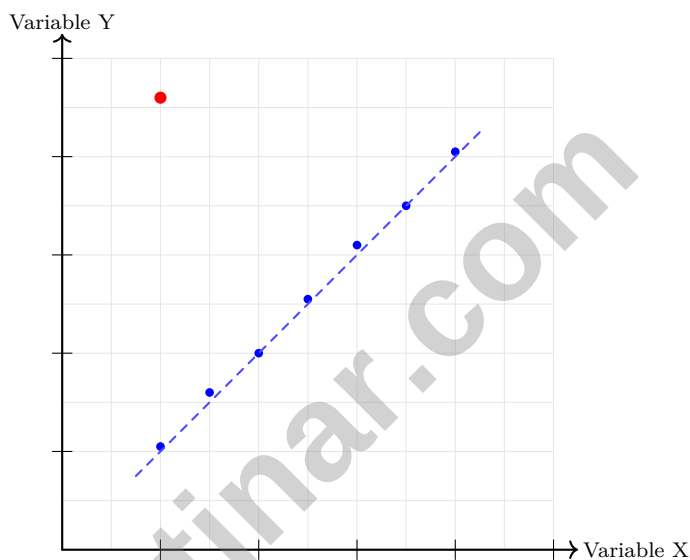
☐ A. $x = 9$

☐ C. $x = -3$

☐ B. $x = 3$

☐ D. $x = 1$

2) Two scatter plots compare the same dataset. Plot A omits one extreme outlier; Plot B includes it. How do you expect the correlation coefficient to change when the outlier is added?



☐ A. Increase dramatically

☐ C. Remain unchanged

☐ B. Decrease (become weaker)

☐ D. Become undefined

3) A right triangle has legs of 15 and 20. How much longer is the hypotenuse than the shorter leg?

☐ A. 10

☐ C. 25

☐ B. 20

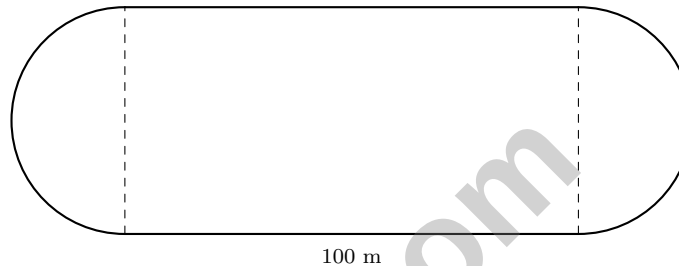
☐ D. 35



- 4) Two angles are supplementary. One angle measures 5 times the other. What is the measure of the larger angle?

☐ A. 30°
☐ C. 90°
☐ B. 36°
☐ D. 150°

- 5) A running track is composed of a rectangle (100 m by 50 m) with two semicircles on the short ends (diameter 50 m each). Find the total perimeter of the track.


☐ A. 300 m

☐ C. 378.5 m

☐ B. 357 m

☐ D. 400 m

- 6) Use the table below. What is the relative frequency of remote workers among HR employees?

	Remote	On-Site	Total
IT	105	75	180
HR	35	85	120
Ops	60	140	200
Total	200	300	500

☐ A. $\frac{35}{200} \approx 0.18$
☐ C. $\frac{35}{120} \approx 0.29$
☐ B. $\frac{35}{500} = 0.07$
☐ D. $\frac{35}{85} \approx 0.41$


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7) A sports analyst compares two players' scoring consistency. Player A averaged 15 points with $MAD = 1.5$. Player B averaged 15 points with $MAD = 4$. Who is the more reliable scorer?

- ☐ A. Player A (more consistent) ☐ C. They are equally reliable
☐ B. Player B (higher variability makes them adaptable) ☐ D. Cannot determine from MAD alone

8) Two different lines are fit to the same scatter plot. Line 1 has residuals of $\pm 2, \pm 1.5, \pm 2$, while Line 2 has residuals of $\pm 5, \pm 4, \pm 6$. Which line is the better fit?

- ☐ A. Line 1, because it has smaller residuals overall ☐ C. Both are equally good fits
☐ B. Line 2, because it has larger residuals ☐ D. Neither is a good fit

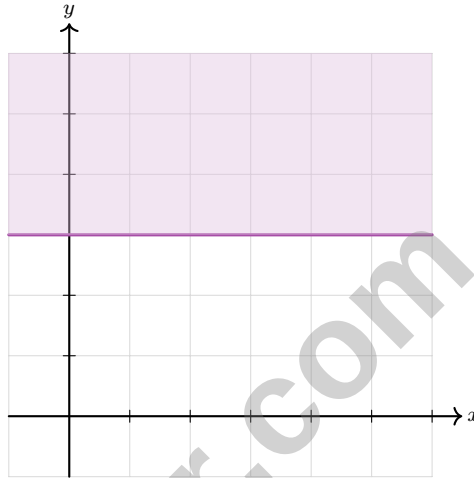
9) A point $P(3, 7)$ moves to $P'(-2, 4)$. What is the translation vector?

10) A triangle has angles measuring 36° , 54° , and x° . Find the value of x .



- 1) A cylinder has radius 4 cm and height 9 cm. What is the difference between total surface area and lateral surface area?

- ☐ A. $32\pi \text{ cm}^2$ ☐ C. $72\pi \text{ cm}^2$
☐ B. $16\pi \text{ cm}^2$ ☐ D. $40\pi \text{ cm}^2$



2)

Which inequality is represented?

- ☐ A. $y \geq 3$ ☐ C. $y > 3$
☐ B. $y \leq 3$ ☐ D. $y < 3$

- 3) The relationship between Celsius (C) and Fahrenheit (F) is linear. When $C = 0$, $F = 32$; when $C = 100$, $F = 212$. What is the slope of the line?

- ☐ A. 1.8 ☐ C. 0.56
☐ B. $\frac{5}{9}$ ☐ D. $\frac{100}{180}$

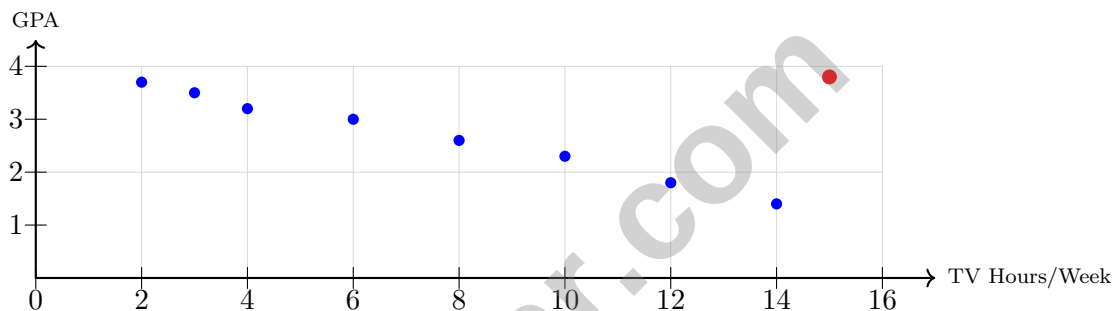


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- 4) In a right triangle, one acute angle measures 38° . What is the measure of the other acute angle?

☐ A. 38° ☐ C. 52°
☐ B. 42° ☐ D. 90°

- 5) A scatter plot displays student GPA versus hours watched TV per week. Most students show a pattern: those who watch more TV have lower GPAs. A student with a GPA of 3.8 watches 15 hours of TV per week, while similar high watchers have GPAs around 1.4–2.0. Is this student an outlier?



- ☐ A. No, the GPA is typical for high TV watchers ☐ C. Yes, it deviates from the expected negative pattern
☐ B. No, GPA is unrelated to TV time ☐ D. No, all points above GPA 3.0 are outliers
- 6) A rectangle has vertices at $(1, 1)$, $(4, 1)$, $(4, 3)$, and $(1, 3)$. If the rectangle is translated 3 units right and 2 units down, what are the coordinates of the new vertex that corresponds to the original $(1, 3)$?

☐ A. $(3, 5)$ ☐ C. $(4, 3)$
☐ B. $(4, 1)$ ☐ D. $(5, 5)$



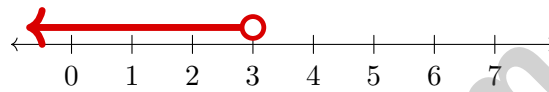
1)

Value	4	8	12
Freq.	2	3	5

Frequency table: mean = 9.2. Calculate MAD.

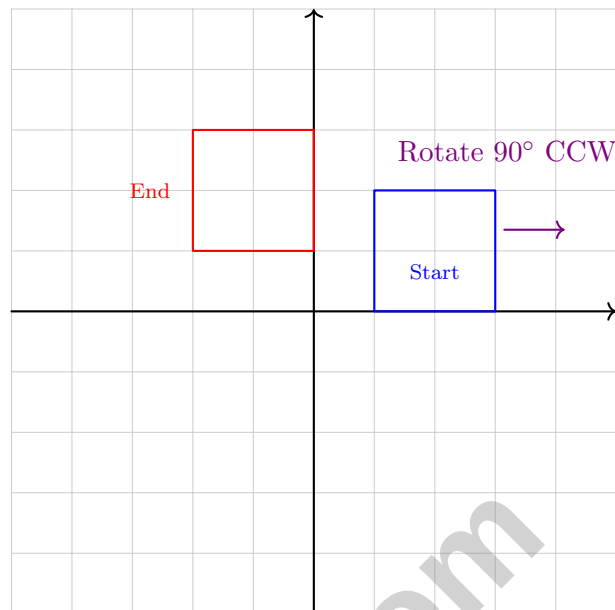
- ☐ A. 2.0 (forgot to weight by frequency) ☐ D. 4.2 (summed deviations without dividing by n)
☐ B. 2.8
☐ C. 3.4 (used unweighted average of deviations)

2) Solve: $x + 7 < 10$. Which number line shows the solution?



- ☐ A. $x < 3$
☐ C. $x \leq 3$
☐ B. $x > 3$
☐ D. $x \geq 3$





3)

After the rotation shown, which of the original vertices maps to the new vertex at $(-2, 3)$?

- ☐ A. $(1, 0)$
☐ C. $(3, 2)$
☐ B. $(3, 0)$
☐ D. $(1, 2)$

4) The points $(0, 3)$, $(2, 7)$, and $(4, 11)$ are on the same line. What is the slope?

- ☐ A. 1
 ☐ C. 3
☐ B. 4
 ☐ D. 2

5) 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



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Wisconsin Forward Exam 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 Wisconsin Forward Exam practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (M.8.EE.C.7b) Expand: $2x + 6 = 3x - 3$. Subtract $2x$ and add 3: $9 = x$, so $x = 9$.
- 2) **Choice B is correct.** (M.8.SP.A.1) In this plot, the outlier sits far from the upward trend line, so it increases scatter and weakens the correlation coefficient.
- 3) **Choice A is correct.** (M.8.G.B.8, M.8.G.B.7) From $15^2 + 20^2 = 225 + 400 = 625$, we get $c = 25$. The difference is $25 - 15 = 10$ (scaled 3-4-5 triple).
- 4) **Choice D is correct.** (M.8.G.B.7) Let the smaller angle be x . Then $x + 5x = 180$, so $6x = 180$ and $x = 30^\circ$. The larger angle is $5 \times 30 = 150^\circ$.
- 5) **Choice B is correct.** (M.8.G.B.7) Decompose the perimeter: two long sides of rectangle plus two semicircles (which form one complete circle). Long sides: $100 + 100 = 200$ m. Circle circumference: $\pi d = 3.14 \times 50 \approx 157$ m. Total = $200 + 157 = 357$ m.
- 6) **Choice C is correct.** (M.8.SP.A.4) Row-conditional frequency: among HR (row total 120), remote workers are 35. Denominator is the row total, not column or grand total.
- 7) **Choice A is correct.** (M.8.G.B.8) Smaller MAD (1.5) indicates more consistent performance near the mean. Player A's scores vary less, making him more predictably reliable.
- 8) **Choice A is correct.** (M.8.SP.A.2) Smaller residuals indicate a line closer to the data points, which is a better fit.
- 9) **The correct answer is $(-5, -3)$.** (M.8.G.A.3) Subtract coordinates: $(-2, 4) - (3, 7) = (-5, -3)$.
- 10) **The correct answer is 90° .** (M.8.G.A.5) $180 - 36 - 54 = 90^\circ$.
- 11) **Choice D is correct.** (M.8.NS.A.1) $\sqrt{2} \times \sqrt{8} = \sqrt{16} = 4$, which is rational. The other products: $\sqrt{3} \times \sqrt{5} = \sqrt{15}$, $\sqrt{6} \times \sqrt{10} = \sqrt{60} = 2\sqrt{15}$, and $\sqrt{7} \times \sqrt{11} = \sqrt{77}$ are all irrational.
- 12) **Choice D is correct.** (M.8.G.A.1) Let $x = 0.\overline{12}$. Then $100x = 12.\overline{12}$. Subtracting: $99x = 12$, so $x = \frac{12}{99} = \frac{4}{33}$.
- 13) **Choice D is correct.** (M.8.NS.A.2) Since the square root function is increasing and $20 < 50$, we have $\sqrt{20} < \sqrt{50}$. The number line shows $\sqrt{20} \approx 4.5$ and $\sqrt{50} \approx 7.1$, confirming $\sqrt{20} < \sqrt{50}$.
- 14) **Choice D is correct.** (M.8.NS.A.2) $\sqrt{2} \approx 1.41$, $\sqrt{3} \approx 1.73$, $\sqrt{5} \approx 2.24$, so the order is increasing.
- 15) **The correct answer is $\frac{1}{6}$.** (M.8.G.B.7) Favorable outcomes: (1,6), (2,5), (3,4), (4,3), (5,2), (6,1). That's 6 of 36. $P = \frac{6}{36} = \frac{1}{6}$.
- 16) **Choice D is correct.** (M.8.EE.A.3) $10^0 = 1$, so $3.9 \times 10^0 = 3.9 \times 1 = 3.9$.
- 17) **Choice C is correct.** (M.8.G.B.7) Parents: \$1,500 (no interest). Credit union: $I = 1500 \times 0.06 \times 2 = \180 . Difference: $\$180 - \$0 = \$180$.
- 18) **Choice C is correct.** (M.8.EE.A.2) Area = 361, so $s = \sqrt{361} = 19$ cm. Perimeter = $4s = 4 \times 19 = 76$ cm.
- 19) **Choice D is correct.** (M.8.EE.B.6) Check (2, 8): $\frac{3}{2}(2) + 5 = 8$, so the point lies on the line. The slope is $\frac{3}{2}$ and the y -intercept is 5; a perpendicular line would have slope $-\frac{2}{3}$, not $\frac{2}{3}$.
- 20) **The correct answer is B,E.** (M.8.F.B.4) Option B is correct because the constant term 35 is the fixed monthly cost. Option E is correct because at $t = 0$, $C = 0.10(0) + 35 = 35$. The slope is 0.10, so the cost per text is \$0.10, not \$0.35.
- 21) **Choice C is correct.** (M.8.EE.C.8a) Add the equations: $(x + 2y) + (3x - 2y) = 10 + 2$, so $4x = 12$, giving $x = 3$. Substitute: $3 + 2y = 10$, so $2y = 7$ and $y = \frac{7}{2}$. Solution: $(3, \frac{7}{2})$.
- 22) **Choice B is correct.** (M.8.F.A.1) Each student ID uniquely identifies one student with one current math grade. Options A, C, and D can pair one input with multiple outputs.
- 23) **Choice A is correct.** (M.8.F.A.2) Rate of A: $(5 - 2)/(1 - 0) = 3$. Rate of B: $(1 - (-1))/(1 - 0) = 2$. Since $3 > 2$, A is greater.
- 24) **Choice D is correct.** (M.8.EE.A.1) Product rule: $3^5 \cdot 3^2 = 3^{5+2} = 3^7$.
- 25) **Choice D is correct.** (M.8.EE.C.7b) Divide coefficients: $6 \div 2 = 3$. Subtract exponents: $10^{5-10} = 10^{-5}$. Result: 3×10^{-5} .
- 26) **Choice D is correct.** (M.8.EE.B.5) At (4, 9), the ratio $y : x = 9 : 4$. This is equivalent to $2.25 : 1$. Slope $k = 9/4 = 2.25$.
- 27) **Choice A is correct.** (M.8.F.B.5) Rising segment = increasing speed (acceleration). Flat = constant speed. Falling = decreasing speed (braking).



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Hi, Thoughtful Reader!

◇ A strong Grade 8 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

★ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 8 opportunities to rehearse test-day habits. ★

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 8 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

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

Jay Daie

Your Reading-and-Math Helper

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror 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.



BUILD SKILLS & BOOST CONFIDENCE

Strengthen understanding and feel prepared for test day.



COVERS ALL ESSENTIAL TOPICS

- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Ratios & Proportional Relationships
- ✓ Linear Equations
- ✓ Functions
- ✓ Geometry
- ✓ Measurement & Data
- ✓ Statistics & Probability
- ✓ Pythagorean Theorem
- ✓ Volume & Surface Area
- ✓ Transformations
- ✓ Inequalities
- ✓ Data Analysis & Graphing
- ✓ And More!



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More Practice. More Confidence.
Better Results.