

9

Washington

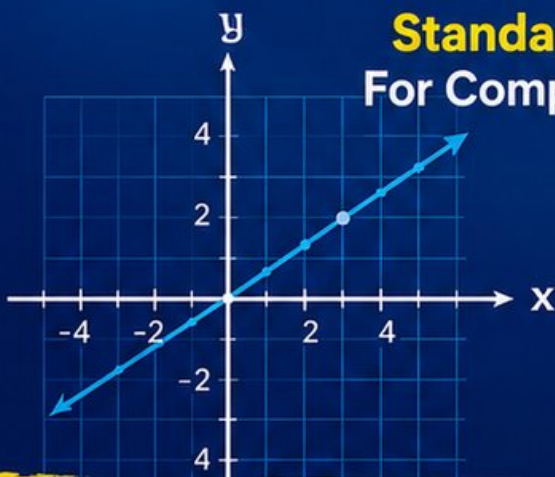
Smarter Balanced

Grade 8

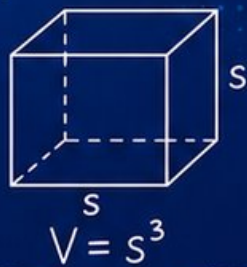
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



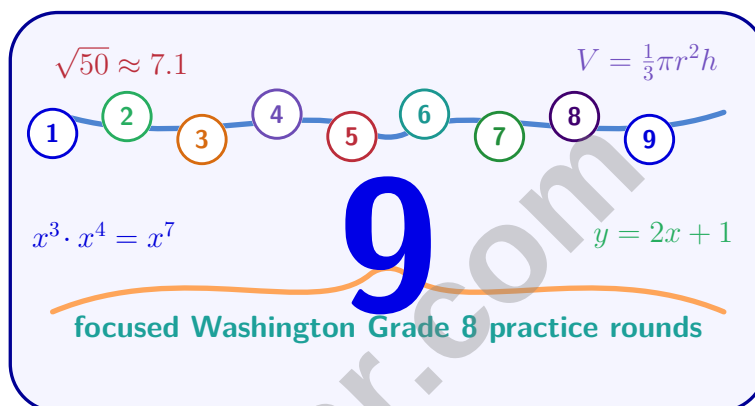
$$2x + 3y = 12$$
$$y = mx + b$$

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

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

9 Washington Smarter Balanced Grade 8 Math Practice Tests

Focused Washington Review for Linear Models, Transformations, Statistics, and Volume



Nine complete 40-question Grade 8 Smarter Balanced 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, Washington Grade 8 Problem Solver!

Nine focused rounds for sharper Smarter Balanced math thinking

This book gives you nine full Grade 8 Smarter Balanced 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 Washington 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.

Washington 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 Smarter Balanced 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) Solve: $-2x + 5 \geq 11$

☐ A. $x \geq -3$

☐ C. $x \leq -3$

☐ B. $x \geq 3$

☐ D. $x \leq 3$

2) Write 4.7×10^{-4} in decimal (standard) form.

3) Two figures are related by a 90° counterclockwise rotation about the origin. If the pre-image has a side parallel to the x -axis, what is true about the corresponding side in the image?

☐ A. It is also parallel to the x -axis

☐ C. It forms a 45° angle with the axes

☐ B. It is parallel to the y -axis

☐ D. Its length becomes half

4) Solve for y : $\frac{y-3}{2} = 5$

☐ A. $y = 13$

☐ C. $y = 4$

☐ B. $y = 7$

☐ D. $y = 10$

5) Which loan has the lowest total repayment cost for \$3,000 principal?

☐ A. 6% for 2 years

☐ C. 4% for 4 years

☐ B. 5% for 3 years

☐ D. 3% for 5 years



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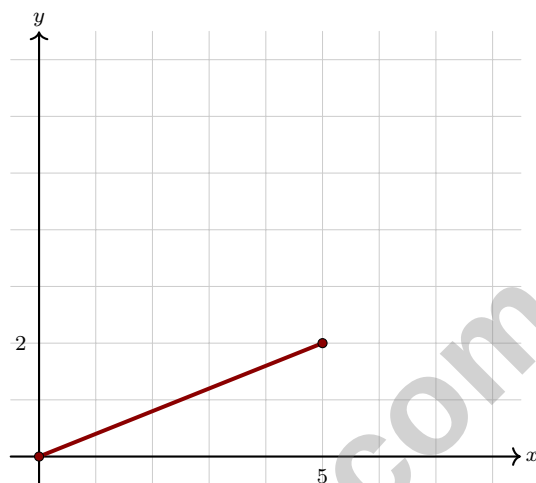
6) If $1.5 \times 10^4 = 15,000$, then $(1.5 \times 10^4) \times 10 = ?$

☐ A. 15×10^5

☐ C. 150,000

☐ B. 1.5×10^3

☐ D. 1.5×10^{40}



7)

Using the graph, find the equation of the proportional relationship.

☐ A. $y = 5x$

☐ C. $y = \frac{2}{5}x$

☐ B. $y = \frac{5}{2}x$

☐ D. $y = 2x$

8) The line $y = mx + b$ has slope $\frac{2}{3}$ and passes through (3,6). What is b ?

☐ A. 4

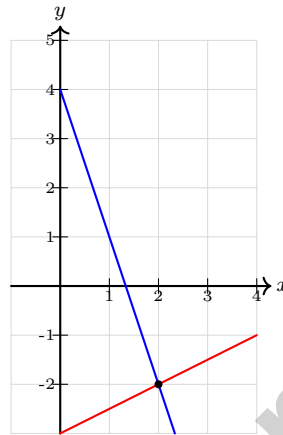
☐ C. 6

☐ B. 2

☐ D. $\frac{2}{3}$



- 9) For the system $\begin{cases} y = -3x + 4 \\ y = \frac{1}{2}x - 3 \end{cases}$, which graph correctly shows the intersection?



- ☐ A. The lines intersect at $(0, 4)$ ☐ C. The lines intersect at $(2, -2)$
☐ B. The lines do not intersect (parallel) ☐ D. The lines intersect at $(1, 1)$
- 10) For the inequality $2x + y > 6$, rearrange to slope-intercept form, identify the boundary line type, and determine the shading region.

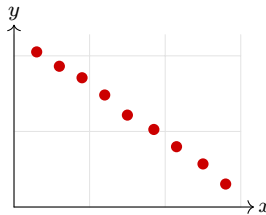
- ☐ A. $y > -2x + 6$; solid line; shade above
☐ B. $y < -2x + 6$; dashed line; shade below
☐ C. $y > -2x + 6$; dashed line; shade above
☐ D. $y > 2x - 6$; dashed line; shade below



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- 1) A shape is reflected across a vertical line and then translated 5 units to the right. If the original shape has area 24 square units, what is the area of the final shape?

- ☐ A. 12 square units ☐ C. 48 square units
☐ B. 24 square units ☐ D. 120 square units



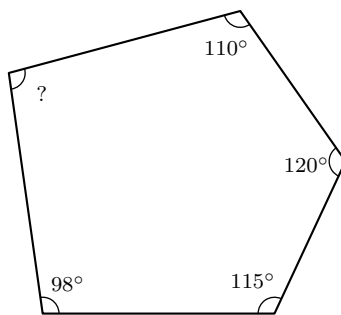
2)

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
- 3) A pyramid has a base area of 75 ft^2 and a volume of 500 ft^3 . What is its height?
- ☐ A. 5 ft ☐ C. 15 ft
☐ B. 10 ft ☐ D. 20 ft
- 4) If $g(x) = x^2 + 2$ and $g(x) = 11$, find the possible values of x .



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5)

A pentagon has four known angles: 98° , 115° , 120° , 110° . Find the fifth angle.

☐ A. 87° ☐ C. 107° ☐ B. 97° ☐ D. 117°

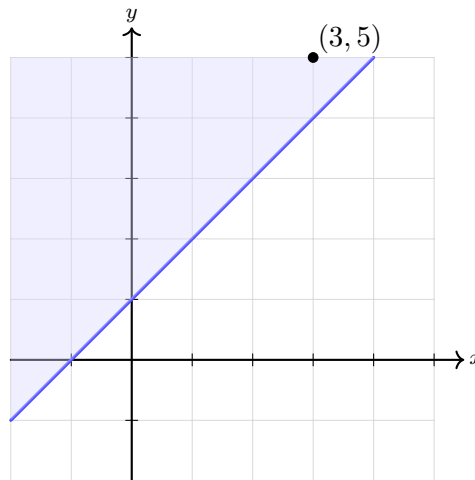
6) If a data set has a small MAD, what does this tell us about the data?

☐ A. The data is clustered close to the mean☐ C. The data has no mean☐ D. The data must all be positive☐ B. The data is widely spread out

Explain: Why does a small MAD indicate consistency?

7) Two similar parallelograms have corresponding side lengths 10 and 15. What is the scale factor from the first to the second?





1)

The graph shows a solid line and shading above. The point $(3, 5)$ is marked in the shaded region. Which inequality is represented?

☐ A. $y > x + 1$

☐ C. $y < x + 1$

☐ B. $y \geq x + 1$

☐ D. $y \leq x + 1$

2) A cylindrical container open at the top has radius 3 cm and height 10 cm. If we need to cover only the curved surface and the bottom (not the top), how much area needs to be covered?

☐ A. $60\pi \text{ cm}^2$

☐ C. $78\pi \text{ cm}^2$

☐ B. $69\pi \text{ cm}^2$

☐ D. $88\pi \text{ cm}^2$

3) A rental company charges $C = 25 + 0.15m$, where C is total cost and m is miles driven. What is the fixed cost (y-intercept)?

☐ A. \$25

☐ C. \$40

☐ B. \$0.15

☐ D. \$15



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4) A square field has an area of 256 square meters. What is its perimeter?

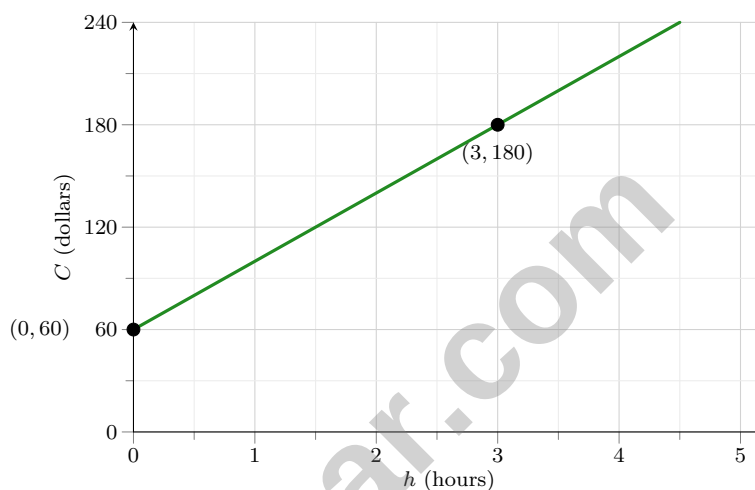
☐ A. 32 meters

☐ C. 64 meters

☐ B. 48 meters

☐ D. 96 meters

5) A plumber charges \$60 for a service call plus \$40 per hour of labor. The graph below represents the total cost C for h hours. Which equation matches the graph?



☐ A. $C = 40h + 60$

☐ C. $C = 100h$

☐ B. $C = 60h + 40$

☐ D. $C = 40h - 60$

6) Solve the system $\begin{cases} 3x - 2y = 4 \\ x + 2y = 8 \end{cases}$ by elimination.



Washington Smarter Balanced 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 Washington Smarter Balanced practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (8.EE.C.8b) Subtract 5: $-2x \geq 6$. Divide by -2 (and FLIP the inequality): $x \leq -3$.
- 2) **The correct answer is 0.00047.** (8.EE.A.3) Move the decimal 4 places to the left: $4.7 \times 10^{-4} = 0.00047$.
- 3) **Choice B is correct.** (8.G.A.1) A 90° rotation turns horizontal lines vertical. A side parallel to the x -axis becomes parallel to the y -axis. Rotations preserve length and angles between sides.
- 4) **Choice A is correct.** (8.EE.C.7) Multiply by 2: $y - 3 = 10$. Add 3: $y = 13$.
- 5) **Choice A is correct.** (8.G.B.7) A: \$360 interest. B: \$450 interest. C: \$480 interest. D: \$450 interest. Option A has the lowest total cost.
- 6) **Choice C is correct.** (8.EE.A.4) $1.5 \times 10^4 \times 10 = 1.5 \times 10^{4+1} = 1.5 \times 10^5 = 150,000$.
- 7) **Choice C is correct.** (8.EE.B.5) Slope $k = \frac{2}{5}$. Equation: $y = \frac{2}{5}x$.
- 8) **Choice A is correct.** (8.EE.B.6) Substitute: $6 = \frac{2}{3}(3) + b$, so $6 = 2 + b$, thus $b = 4$.
- 9) **Choice C is correct.** (8.EE.C.8a) The marked point where the two lines meet is $(2, -2)$, so that ordered pair is the solution.
- 10) **Choice C is correct.** (8.EE.C.8b) Rearrange: $y > -2x + 6$. Strict inequality ($>$) → DASHED boundary. Since y is GREATER than the expression, shade ABOVE. Distractor A mistakes dashed for solid; B flips both inequality and shading; D has wrong slope.
- 11) **Choice A is correct.** (8.F.A.2) Speed is the slope. A has slope 60 mph. B has slope $(5 - 1)/(5 - 0) = 4/5 = 0.8$ mph. Since $60 > 0.8$, A travels faster.
- 12) **Choice D is correct.** (8.F.B.4) Plan A: $C_A = 5h + 10$. Plan B: $C_B = 2h + 20$. Set equal: $5h + 10 = 2h + 20$, so $3h = 10$ and $h = \frac{10}{3}$ hours.
- 13) **The correct answer is 7.1.** (8.NS.A.1) Since $7^2 = 49$ and $7.1^2 = 50.41$, we have $\sqrt{50}$ between 7.0 and 7.1, closer to 7.1. More precisely, $7.07^2 \approx 49.98 \approx 50$. To the nearest tenth, $\sqrt{50} \approx 7.1$.
- 14) **Choice A is correct.** (8.G.A.3) Reverse the translation: $(x, y) \rightarrow (x + 6, y - 4)$. So $P = (1 + 6, 8 - 4) = (7, 4)$.
- 15) **Choice C is correct.** (8.G.A.5) Let the angles be $2x$, $3x$, and $4x$. Sum: $2x + 3x + 4x = 180$, so $9x = 180$ and $x = 20^\circ$. Smallest angle: $2x = 40^\circ$.
- 16) **Choice C is correct.** (8.G.B.6, 8.G.B.7) Using the Pythagorean Theorem: $7^2 + 24^2 = 49 + 576 = 625$, so $c = 25$ (the 7-24-25 triple).
- 17) **Choice C is correct.** (8.NS.A.2) $\pi \approx 3.14159\dots$, commonly estimated as 3.14 or 3.2 for Grade 8 work. Distractors: A (underestimate), B (rounds down), D (rounds up).
- 18) **Choice D is correct.** (8.EE.A.1) Simplify coefficients: $\frac{20}{5} = 4$. Simplify variables: $\frac{x^9}{x^3} = x^6$. Result: $4x^6$.
- 19) **Choice D is correct.** (8.EE.A.2) $e^3 = 1000$, so $e = \sqrt[3]{1000} = 10$ inches.
- 20) **Choice A is correct.** (8.EE.C.7) Find two numbers that multiply to -10 and add to 3: 5 and -2 . Check: $5 \cdot (-2) = -10$ and $5 - 2 = 3$.
- 21) **Choice D is correct.** (8.F.A.1) Divide 10 by 2: $10 \div 2 = 5$. Subtract 1: $5 - 1 = 4$.
- 22) **The correct answer is A, E.** (8.G.B.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.F.A.3) Only $y = 6x - 9$ is in the form $y = mx + b$. Options A, B, and D involve exponents, reciprocals, or square roots, making them nonlinear.
- 24) **Choice A is correct.** (8.F.B.5) The instant pump-dry event is shown with a dashed vertical jump from 4 to 0 at $t = 2$. This marks a discontinuity, not a gradual change over time.
- 25) **Choice B is correct.** (8.G.A.2) Both reflection and rotation are rigid motions that preserve area. A sequence of rigid motions preserves the original area, so the final triangle has area 35 sq cm.
- 26) **Choice D is correct.** (8.G.B.7) Rectangle area = $12 \times 8 = 96 \text{ ft}^2$. Each triangle area = $\frac{1}{2} \times 6 \times 4 = 12 \text{ ft}^2$. Two triangles = 24 ft^2 . Total = $96 + 24 = 120 \text{ ft}^2$.



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Hi, Detail Champion!

◇ In Grade 8, small details can change an entire answer: a negative sign, a decimal place, a unit, an exponent, or an inequality symbol. ◇

★ **Remember this:** You practiced noticing those details. That is a serious test skill, and it gets better with every careful review. This version gave you 9 opportunities to rehearse test-day habits. ★

Detail Checks

- **Signs:** Circle negatives before simplifying.
- **Symbols:** Read inequality signs carefully.
- **Decimals:** Line up place values.
- **Units:** Match the unit the question asks for.

Grade 8 test-day tip: Use the final minute on each section for a detail scan, not a full redo.

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

Jay Daie

Your Detail-Check 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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