

Washington

Smarter Balanced

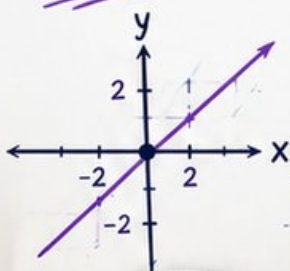
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

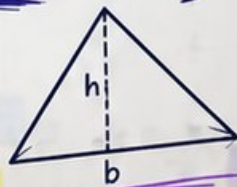
$$y = mx + b$$



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

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



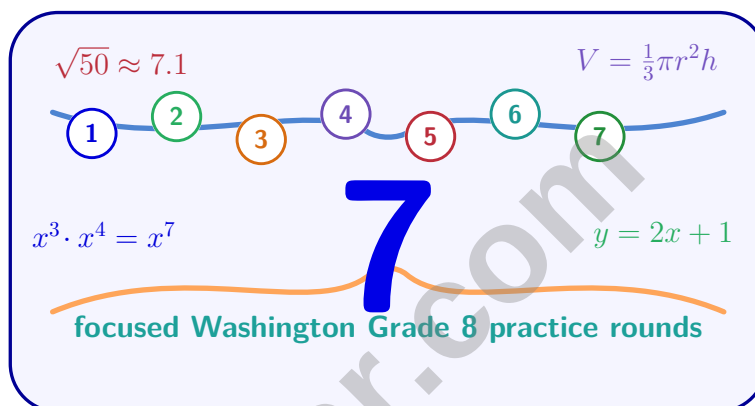
2 ONLINE
TESTS



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

7 Washington Smarter Balanced Grade 8 Math Practice Tests

Grade 8 Smarter Balanced Practice for Linear Models, Geometry, and Data



Seven 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!

Seven focused rounds for sharper Smarter Balanced math thinking

This book gives you seven 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 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.

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?

Seven Smarter Balanced 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.

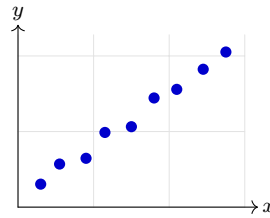
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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For more practice
& answers

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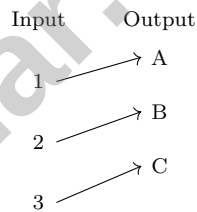


1)

A scatter plot shows monthly rainfall (inches) versus crop yield (tons per acre) for a farm over 10 years. The points show a clear upward trend with moderate scatter around the line of best fit. Which statement is most accurate?

- ☐ A. Moderate positive correlation exists between rainfall and crop yield ☐ C. Rainfall and crop yield are unrelated
☐ B. Rainfall is the only factor affecting crop yield ☐ D. Decreased rainfall increases crop yield

2) Analyze this mapping and determine if it is a function:



- ☐ A. Yes, this is a function. ☐ C. No, because there are three inputs and three outputs.
☐ B. No, because inputs are numbers and outputs are letters. ☐ D. Yes, but only if each input is positive.

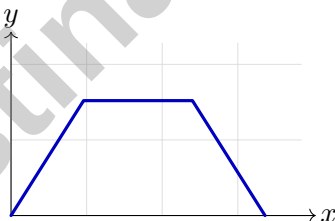


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- 3) The cost of a gym membership is \$50 per month. If Sarah spends a total of \$200 after t months, write and solve an equation to find t . Verify your answer.

- 4) Solve the system $\begin{cases} y = 2x \\ x + y = 9 \end{cases}$ by substitution.

- 5) A graph shows: starting at origin, increasing to $(2, 4)$, then constant to $(5, 4)$, then decreasing to $(7, 0)$. Where is the y -intercept?



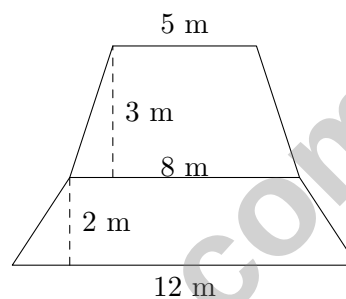
- ☐ A. $(0, 0)$ ☐ C. $(5, 4)$
☐ B. $(2, 4)$ ☐ D. $(7, 0)$



- 6) A right triangle has one leg equal to $\sqrt{15}$ and a hypotenuse equal to $\sqrt{31}$. What is the other leg?

☐ A. $\sqrt{15}$ ☐ C. 4
☐ B. $\sqrt{46}$ ☐ D. 8

- 7) A composite figure is an asymmetric shape made of two trapezoids stacked vertically. Top trapezoid: bases 5 m and 8 m, height 3 m. Bottom trapezoid: bases 8 m and 12 m, height 2 m. What is the combined area?



☐ A. 15 m^2 ☐ C. 35 m^2
☐ B. 20 m^2 ☐ D. 39.5 m^2

- 8) Trapezoid $PQRS$ is similar to Trapezoid $TUVW$ with scale factor $\frac{3}{2}$. If $PQ = 8 \text{ cm}$ in trapezoid $PQRS$, what is the length of TU in trapezoid $TUVW$?

☐ A. 12 cm ☐ C. 8 cm
☐ B. 5.33 cm ☐ D. 10.67 cm

- 9) The inequality $4x - y \geq 8$ is rewritten as $y \leq 4x - 8$. Which region should be shaded?

☐ A. Above the line with a dashed boundary ☐ C. Above the line with a solid boundary
☐ B. Below the line with a solid boundary ☐ D. Below the line with a dashed boundary



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1) Three consecutive angles on a straight line measure x , $x + 15$, and $2x - 15$. Find x .

☐ A. 25°

☐ C. 45°

☐ B. 35°

☐ D. 55°

2) If an equation simplifies to $0 = 5$ after subtracting variables and constants from both sides, what does this tell you?

☐ A. The equation has exactly one solution

☐ C. The equation has infinitely many solutions

☐ B. The solution is $x = 0$

☐ D. The equation has no solution

3) A line in slope-intercept form is $y = mx + b$. If the slope is $-\frac{3}{4}$ and the line passes through $(4, -3)$, what is b ?

☐ A. 0

☐ C. -6

☐ B. 3

☐ D. 6

4) A dust particle has a mass of 2×10^{-8} kg. If 500 such particles are stacked, what is the total mass in scientific notation?

5) Solve: $-\frac{1}{2}x + 3 \geq 5$

☐ A. $x \geq -4$

☐ C. $x \geq 4$

☐ B. $x \leq 4$

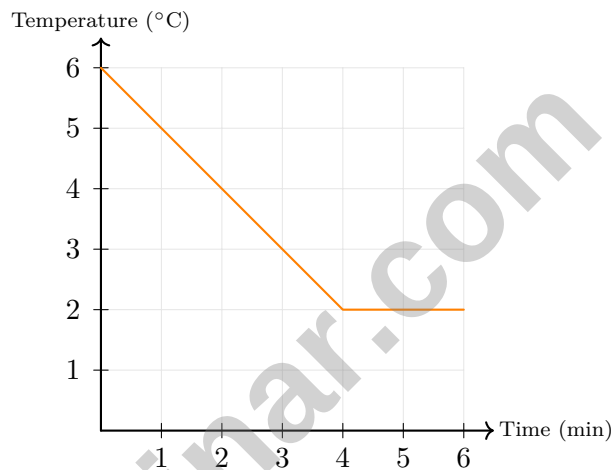
☐ D. $x \leq -4$



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6) A math teacher says: “A function is when you input a number and always get the same output.” Is this definition correct?

- ☐ A. Yes, this is a complete definition.
- ☐ B. No, because constant functions like $y = 5$ are not functions.
- ☐ C. No, a function only requires that each input has exactly one output, not that different inputs produce the same output.
- ☐ D. Yes, as long as the input is positive.



7)

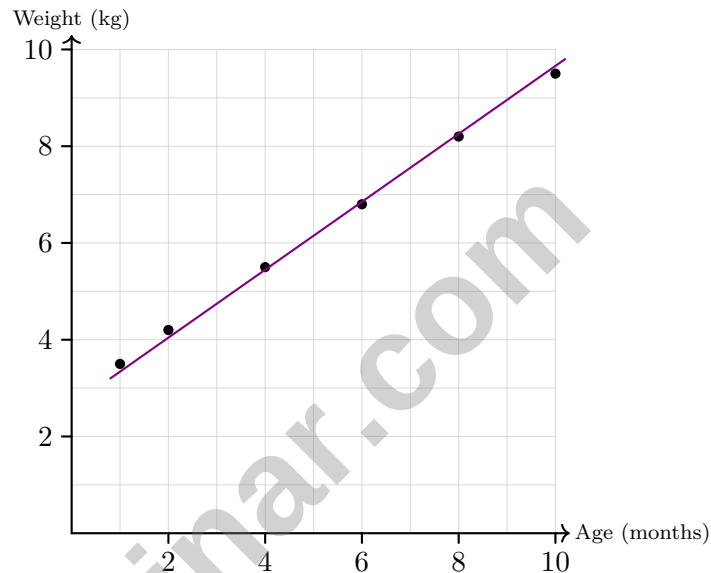
A cup of hot liquid is placed in a freezer. Which statement about the graph is false?

- ☐ A. Temperature increases from 0 to 2 minutes
- ☐ B. Temperature decreases from 2 to 4 minutes
- ☐ C. The function is linear from 4 to 6 minutes
- ☐ D. The initial temperature is 6 degrees C



1) Which scenario represents an error in calculating MAD?

- ☐ A. Finding $MAD = 3$ but forgetting to list all deviations
- ☐ B. Calculating deviations: $|2 - 5| = 3$
- ☐ C. Using $(maximum - minimum)$ instead of mean absolute deviations
- ☐ D. Stating $MAD = 0$ when all values are identical



2)

An infant growth chart plots age in months versus weight in kg. If the trend line is $y = 0.65x + 2.5$, how much weight gain is predicted per month?

- ☐ A. 0.65 kg per month
- ☐ B. 0.50 kg per month
- ☐ C. 2.5 kg per month
- ☐ D. 3.15 kg per month



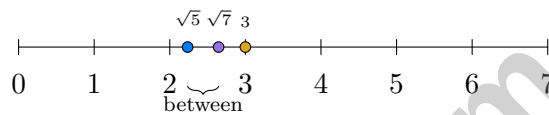
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& answers

- 3) A game involves picking a number (1, 2, or 3) and a letter (A or B). The table lists some outcomes. How many total outcomes should the complete table show?

Number	A	B
1	(1,A)	(1,B)
2	(2,A)	(2,B)
3	(3,A)	(3,B)

- ☐ A. $3 + 2 = 5$
☐ C. $2^3 = 8$
☐ B. $3 \times 2 = 6$
☐ D. $3^2 = 9$

4)



Based on the number line, which statement is correct?

- ☐ A. $\sqrt{5}$ and $\sqrt{7}$ are both less than 1
 ☐ C. 3 is irrational
☐ B. $\sqrt{7} > 3$
☐ D. $2 < \sqrt{5} < \sqrt{7} < 3$
- 5) What fraction equals $0.8\overline{3}$?
- ☐ A. $\frac{83}{100}$
☐ C. $\frac{8}{30}$
☐ B. $\frac{83}{99}$
☐ D. $\frac{75}{90} = \frac{5}{6}$
- 6) A triangle has angles measuring 36° , 54° , and x° . Find the value of x .



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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& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (8.SP.A.1) Clear upward trend with some scatter indicates positive correlation of moderate strength. Other factors also affect yield, so the correlation is not perfect.
- 2) **Choice A is correct.** (8.F.A.1) Each input (1, 2, 3) maps to exactly one output (A, B, C). The fact that outputs are letters instead of numbers is irrelevant.
- 3) **The correct answer is $t = 4$ months.** (8.EE.C.7) The equation is $50t = 200$. Divide both sides by 50: $t = 4$ months. Verify: $50(4) = 200$ ✓.
- 4) **The correct answer is (3, 6).** (8.EE.C.8a) Substitute $y = 2x$ into $x + y = 9$: $x + 2x = 9$, so $3x = 9$, giving $x = 3$. Then $y = 2(3) = 6$.
- 5) **Choice A is correct.** (8.F.B.5) The y -intercept is where $x = 0$. The graph starts at the origin, so the y -intercept is (0, 0).
- 6) **Choice C is correct.** (8.G.B.6, 8.G.B.7) From $(\sqrt{15})^2 + b^2 = (\sqrt{31})^2$, we get $15 + b^2 = 31$, so $b^2 = 16$ and $b = 4$.
- 7) **Choice D is correct.** (8.G.B.7) Top trapezoid area is $\frac{1}{2}(5+8) \times 3 = 19.5 \text{ m}^2$. Bottom trapezoid area is $\frac{1}{2}(8+12) \times 2 = 20 \text{ m}^2$. The combined area is $19.5 + 20 = 39.5 \text{ m}^2$.
- 8) **Choice A is correct.** (8.G.A.4) Scale factor from $PQRS$ to $TUVW$ is $\frac{3}{2}$. So $TU = PQ \times \frac{3}{2} = 8 \times 1.5 = 12 \text{ cm}$.
- 9) **Choice B is correct.** (8.EE.C.8b) The inequality $y \leq 4x - 8$ has LESS THAN OR EQUAL ($\leq$), so a SOLID line and shading BELOW.
- 10) **Choice A is correct.** (8.F.A.2) Slope: $(24 - 9)/(5 - 2) = 15/3 = 5$. From point (2, 9): $9 = 5(2) + b \Rightarrow b = -1$. Equation is $y = 5x - 1$.
- 11) **Choice D is correct.** (8.G.C.9) From $V = \frac{1}{3}\pi r^2 h$: $150\pi = \frac{1}{3}\pi \times 25 \times h \Rightarrow 450 = 25h \Rightarrow h = 18 \text{ cm}$.
- 12) **Choice D is correct.** (8.G.A.5) The sum for a pentagon is $(5 - 2) \times 180 = 540^\circ$. Each angle of a regular pentagon is $\frac{540}{5} = 108^\circ$.
- 13) **Choice A is correct.** (8.SP.A.3) The slope is 75, meaning the account increases by \$75 each month.
- 14) **Choice C is correct.** (8.G.B.7) With replacement, first draw has 6 choices, second draw has 6 choices. Total: $6 \times 6 = 36$ outcomes.
- 15) **Choice A is correct.** (8.F.B.4) y -intercept is 4. Slope is $\frac{10-4}{3-0} = \frac{6}{3} = 2$. Equation: $y = 2x + 4$.
- 16) **The correct answer is 5.** (8.EE.C.8b) Solve $45 + 5q \geq 70$, giving $q \geq 5$. The minimum whole number is 5.
- 17) **The correct answer is 4.** (8.G.A.1) Reflections preserve side lengths. The reflected side has the same length as the original, which is 4 units.
- 18) **Choice B is correct.** (8.G.A.2) Perimeter of Triangle 1 = $5 + 5 + 6 = 16 \text{ cm}$. Even though Triangle 2 is oriented differently (rotated or reflected), congruent figures have equal corresponding sides. Therefore, Triangle 2 also has sides of 5 cm, 5 cm, and 6 cm, giving a perimeter of 16 cm.
- 19) **Choice D is correct.** (8.G.A.3) The original triangle has base 2 (from (2, 0) to (4, 0)). The image has base 1. Scale factor: $\frac{1}{2}$.
- 20) **The correct answer is A, B.** (8.EE.B.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.
- 21) **Choice B is correct.** (8.G.A.5) Sum: $(2m + 5) + (3m - 10) + (m + 35) = 180 \Rightarrow 6m + 30 = 180 \Rightarrow m = 25^\circ$. Thus angle $A = 2(25) + 5 = 55^\circ$.
- 22) **Choice A is correct.** (8.G.B.8) $d = \sqrt{(7-1)^2 + (5-2)^2} = \sqrt{6^2 + 3^2} = \sqrt{36 + 9} = \sqrt{45}$.
- 23) **Choice C is correct.** (8.G.B.7) All four angles at an intersection sum to 360° . The fourth angle is $360 - 240 = 120^\circ$.
- 24) **Choice A is correct.** (8.G.C.9) $V = \frac{1}{3} \times 2.25 \times 10 = \frac{22.5}{3} = 7.5 \text{ m}^3$.
- 25) **Choice D is correct.** (8.SP.A.4) D is incorrect: $\frac{32}{80} = 0.40$ is a row-conditional frequency (among teens), not the percentage of all shoppers. The joint relative frequency is $\frac{32}{240} \approx 0.13$. Options A, B, C are correct frequency calculations.



Hi, Confident Learner!

◇ This broad and demanding book gave you seven strong Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 8 math can feel big because it connects real numbers and exponents with linear equations, systems, functions, transformations, geometry, and data.

◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 8 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence 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! |



2 EXTRA ONLINE PRACTICE TESTS INCLUDED!

Use these two additional online practice tests for extra review after the printed tests.

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