

10 Hawaii

Smarter Balanced

GRADE
8
MATH

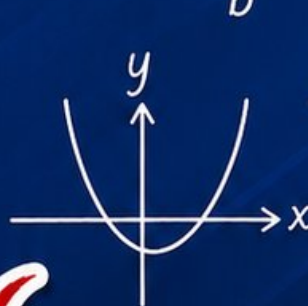
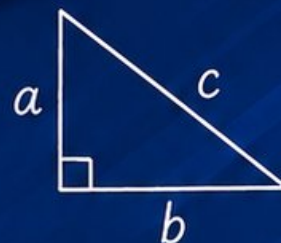
PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10 PRINTED TESTS 

2 ONLINE TESTS 

- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work



$$3x - 7 = 2(x + 5)$$
$$x = 17$$

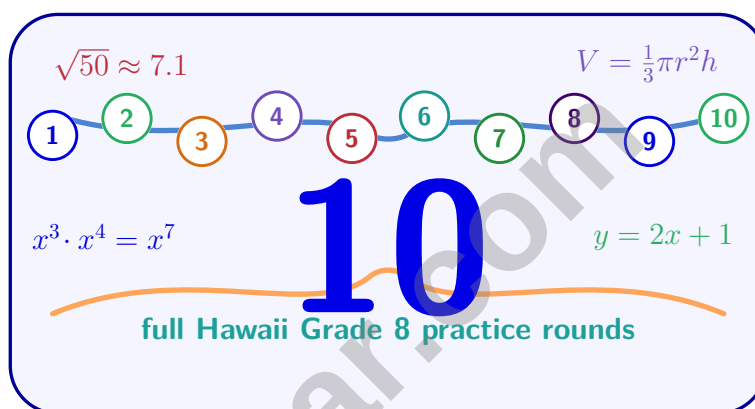


**USE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTS**

**FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.**

10 Hawaii Smarter Balanced Grade 8 Math Practice Tests

Hawaii Grade 8 Smarter Balanced Practice for island-ready reasoning with functions, scientific notation, real numbers, geometry, data, and probability



Ten complete 40-question Grade 8 Smarter Balanced practice rounds with linear relationships, scientific notation, real numbers, equations, functions, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Hawaii Grade 8 Problem Solver!

Ten focused rounds for sharper Hawaii Smarter Balanced math thinking

This book gives you ten full Grade 8 Smarter Balanced math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **The Pythagorean Theorem** (8.G.B.6): Explain a proof of the Pythagorean Theorem and its converse. A second useful connection is **Personal Financial Literacy** (8.G.B.7): Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

Your Hawaii 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 ten-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 a proportion, equation, diagram, number line, 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.

Grade 8 standards focus: Keep the routine connected to **Volume of Cylinders, Cones, and Spheres** (8.G.C.9): Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. It also prepares you for **Surface Area of Prisms, Cylinders, and Pyramids** (8.G.C.9): Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Hawaii 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?

Ten Hawaii Smarter Balanced tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Hawaii round to show growth across the whole book.
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.

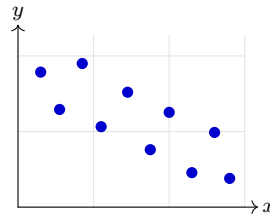
Grade 8 standards focus: Use these habits while practicing **Using a Linear Model** (8.SP.A.3): Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting slope and intercept. Another recurring target is **Probability of Simple and Compound Events** (8.G.B.7): Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.



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& answers

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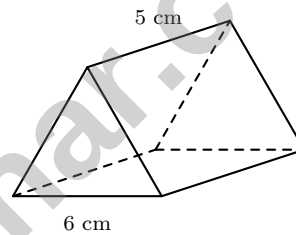


1)

A researcher studies the relationship between screen time (hours/day) and grade point average (GPA 0–4.0) for high school students. The scatter plot shows weak negative correlation ($r = -0.35$) with substantial scatter. The researcher writes: **“The data show that screen time weakly causes lower GPAs.”** Which phrase in this statement is incorrect?

- ☐ A. *screen time*
☐ B. *lower GPAs*

- ☐ C. *weakly*
☐ D. *causes*



2)

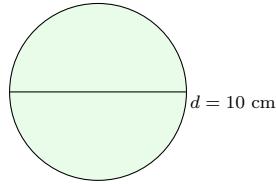
An equilateral triangular prism has triangular bases with side length 6 cm and prism length (height) 5 cm. The height of each equilateral triangle is approximately 5.2 cm. What is the approximate total surface area?

- ☐ A. 31.2 cm^2
☐ B. 46.8 cm^2

- ☐ C. 121.2 cm^2
☐ D. 141 cm^2



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3)

A sphere has a diameter of 10 cm. What is its approximate volume? (Use $\pi \approx 3.14$.)

☐ A. 314 cm^3

☐ C. 1046.67 cm^3

☐ B. 523.33 cm^3

☐ D. 1570.8 cm^3

4) A linear model for the cost of producing n items is $C = 2n + 50$. What is the predicted cost of producing 100 items?

☐ A. \$150

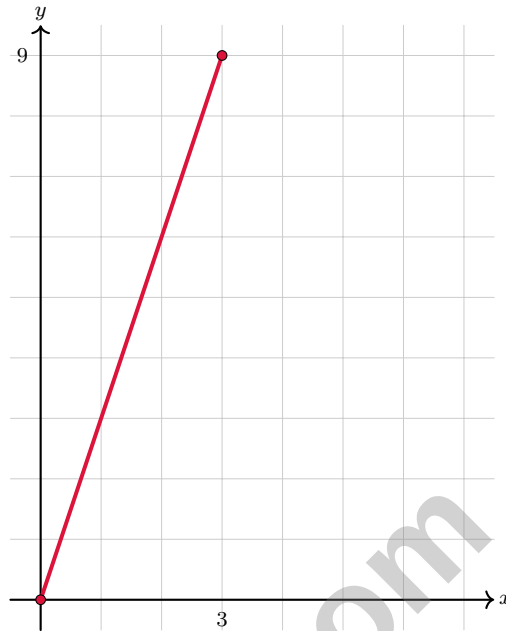
☐ C. \$250

☐ B. \$200

☐ D. \$300

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5)

What is the slope?

☐ A. 2☐ B. $\frac{9}{2}$ ☐ C. $\frac{1}{3}$ ☐ D. 36) Solve by elimination:
$$\begin{cases} 2x + 5y = 19 \\ 2x + y = 7 \end{cases}$$
☐ A. (1, 5)☐ B. (2, 3)☐ C. (3, 1)☐ D. (4, -1)

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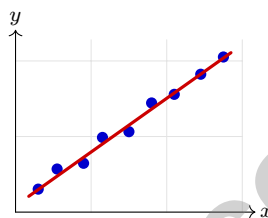
1) A clue box for factoring the trinomial shows:

$x^2 + 9x + 20$

Multiply: 20 Add: 9

Which expression completes the factorization?

- | | |
|---|---|
| ☐ A. $(x + 4)(x + 5)$
☐ B. $(x + 9)(x + 20)$ | ☐ C. $(x - 4)(x - 5)$
☐ D. $x(x + 4)(x + 5)$ |
|---|---|



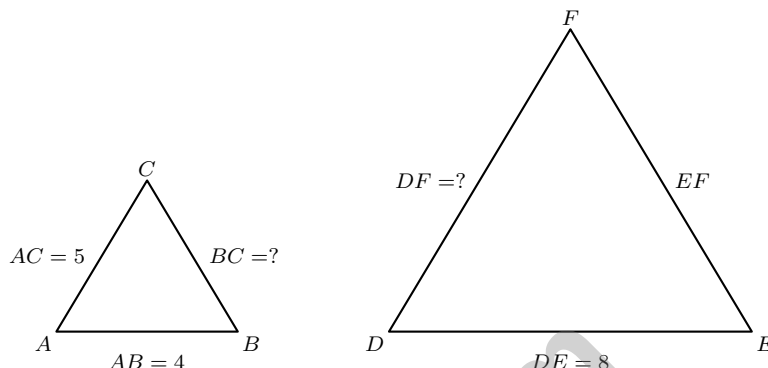
2)

Which is the BEST description of a “line of best fit” on a scatter plot?

- | | |
|--|---|
| ☐ A. A line that passes through every data point
☐ B. A line that passes through no data points | ☐ C. A line that generally shows the overall trend of the data
☐ D. A line that only passes through the outliers |
|--|---|



- 3) Two similar triangles are shown. Triangle ABC has sides 4 cm and 5 cm. Triangle DEF has a corresponding side of 8 cm. Find the length of the side in DEF corresponding to the 5 cm side in ABC .



- ☐ A. 10 cm
- ☐ B. 6.5 cm
- ☐ C. 9 cm
- ☐ D. 2.5 cm
- 4) Given $f(x) = x^2$ and $g(x) = 2x + 1$, which statement is true?
- ☐ A. $f(3) = g(3)$
- ☐ B. $f(3) > g(3)$
- ☐ C. $f(3) < g(3)$
- ☐ D. Cannot be determined



Which number can be written as a terminating decimal?

- ☐ A. $\sqrt{5}$
- ☐ B. $1 + \pi$
- ☐ C. $\sqrt{e}$ (where $e \approx 2.718$)
- ☐ D. $\frac{5}{8}$



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1) Consider the data: $\{3, 6, 9, 12\}$ (mean = 7.5). What is the MAD?

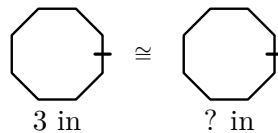
☐ A. 2

☐ C. 3.75

☐ B. 3

☐ D. 4.5

2) Two congruent regular polygons are shown. Each polygon has 8 sides. If one octagon has a side length of 3 inches, what is the side length of the other octagon?



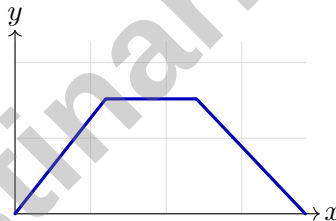
☐ A. 1.5 inches

☐ C. 6 inches

☐ B. 3 inches

☐ D. 9 inches

3) A graph of a function shows distance from home (in miles) vs. time. The graph rises, then is flat, then falls. Which real-world scenario matches?



☐ A. Drive somewhere, stop, then drive home

☐ C. Stay home, then drive faster

☐ B. Walk faster and faster until stopping

☐ D. Drive home directly from work



- 4) A plant grows at a constant rate. After 2 weeks it is 8 inches tall. After 6 weeks it is 14 inches tall. What is the rate of growth per week (slope)?
- ☐ A. 1.5 inches per week ☐ C. 2 inches per week
☐ B. 3.5 inches per week ☐ D. 7 inches per week
- 5) Two rectangular fields have the same width. The first field is 50 m long and has a perimeter of 180 m. The second field is 60 m long and has a perimeter of 200 m. What is the width?
- ☐ A. 20 m ☐ C. 40 m
☐ B. 30 m ☐ D. 50 m
- 6) 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
- 7) 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 $\frac{\Delta x}{\Delta y}$ ☐ C. Used (1, 3) twice
☐ B. Subtracted incorrectly ☐ D. Used the y -intercept as the slope
- 8) A segment has endpoints $E(2, 3)$ and $F(5, 7)$. After a translation, E maps to $E'(-1, 2)$. Where does F map to?
- ☐ A. (2, 6) ☐ C. (2, 4)
☐ B. (4, 8) ☐ D. (1, 6)



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& answers

Hawaii 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 Hawaii Smarter Balanced practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.SP.A.1) Correlation (weak or strong) never proves causation. The phrase “causes” is incorrect. The statement should say “correlates with” or “is associated with” lower GPAs. Other factors (parental involvement, motivation, socioeconomic factors) may drive both variables.
- 2) **Choice C is correct.** (8.G.C.9) Two triangular bases: $2 \times \frac{1}{2}(6)(5.2) = 31.2 \text{ cm}^2$. Three rectangular sides: $3 \times (6 \times 5) = 90 \text{ cm}^2$. Total $\approx 31.2 + 90 = 121.2 \text{ cm}^2$.
- 3) **Choice B is correct.** (8.G.C.9) Radius $r = 5 \text{ cm}$. $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 125 = 523.33 \text{ cm}^3$.
- 4) **Choice C is correct.** (8.SP.A.3) Substitute $n = 100$: $C = 2(100) + 50 = 200 + 50 = \250 .
- 5) **Choice D is correct.** (8.EE.B.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.
- 6) **Choice C is correct.** (8.EE.C.8a) Subtract the second from the first: $(2x + 5y) - (2x + y) = 19 - 7$, so $4y = 12$, giving $y = 3$. Substitute: $2x + 1 = 7$, so $x = 3$. Solution: $(3, 3)$.
- 7) **Choice C is correct.** (8.EE.C.8b) SOLID line (includes boundary) and shading ABOVE indicate $y \geq 1.5x$.
- 8) **Choice A is correct.** (8.F.A.2) Slope: $(5 - 3)/(2 - 1) = 2$. From $(1, 3)$: $3 = 2(1) + b \Rightarrow b = 1$. So $y = 2x + 1$.
- 9) **The correct answer is 10.** (8.EE.A.1) Using the quotient rule, $n - 4 = 6$, so $n = 10$. Verification: $\frac{b^{10}}{b^4} = b^6$.
- 10) **Choice B is correct.** (8.F.A.3) $y = \frac{3}{4}x + 2$ perfectly matches the linear form $y = mx + b$ with $m = \frac{3}{4}$ and $b = 2$. Fractional slopes do not make a function nonlinear.
- 11) **Choice B is correct.** (8.F.B.4) At $h = 0$: $C_X = 10$ and $C_Y = 5$. Plan Y's initial cost (y -intercept = 5) is less than Plan X's (y -intercept = 10).
- 12) **Choice C is correct.** (8.G.A.2) Using the Pythagorean Theorem on Triangle 1: $c^2 = 6^2 + 8^2 = 36 + 64 = 100$, so $c = 10 \text{ m}$. Triangle 2 is congruent, so its hypotenuse is also 10 m.
- 13) **Choice B is correct.** (8.G.A.3) Reflection across the x -axis negates the y -coordinate: $(x, y) \rightarrow (x, -y)$. So $(6, 4) \rightarrow (6, -4)$.
- 14) **Choice D is correct.** (8.G.B.6, 8.G.B.7) Check option D: $7^2 + 8^2 = 49 + 64 = 113 \neq 81 = 9^2$. The other options are all known Pythagorean triples.
- 15) **Choice B is correct.** (8.G.B.8) $d = \sqrt{(10 - 1)^2 + (13 - 1)^2} = \sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15$.
- 16) **Choice C is correct.** (8.G.B.7) Angles on a straight line sum to 180° . The third angle is $180 - 42 - 85 = 53^\circ$.
- 17) **Choice A is correct.** (8.G.C.9) $V = \frac{1}{3} \times (2 \times 2) \times 3 = \frac{1}{3} \times 4 \times 3 = 4 \text{ m}^3 = 4000 \text{ L}$.
- 18) **Choice C is correct.** (8.G.B.7) Decompose: triangle and rectangle. Triangle area = $\frac{1}{2} \times 8 \times 6 = 24 \text{ ft}^2$. Rectangle area = $8 \times 1.5 = 12 \text{ ft}^2$. Total = $24 + 12 = 36 \text{ ft}^2$.
- 19) **Choice B is correct.** (8.G.A.5) An interior angle and its adjacent exterior angle are supplementary—they form a straight line and sum to 180° .
- 20) **Choice C is correct.** (8.G.B.7) Savings account: $A = 1000(1 + 0.02 \times 4) = \$1,080$. Investment: $A = 1000(1 + 0.05 \times 4) = \$1,200$. Difference: $\$1,200 - \$1,080 = \$120$.
- 21) **The correct answer is B, E.** (8.G.B.7) There are 10 marbles total. B is true because $P(\text{blue}) = \frac{3}{10}$. E is true because $P(\text{red or blue}) = \frac{5+3}{10} = \frac{8}{10} = \frac{4}{5}$. A is false because $P(\text{red}) = \frac{1}{2}$. C is false because $P(\text{green}) = \frac{1}{5}$. D is false because $P(\text{yellow}) = 0$.
- 22) **Choice C is correct.** (8.EE.C.7) GCF is 3: $3x^2 + 6x + 3 = 3(x^2 + 2x + 1) = 3(x + 1)^2$.
- 23) **Choice B is correct.** (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.
- 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.5) Corresponding angles are congruent: $9t - 15 = 4t + 10 \Rightarrow 5t = 25 \Rightarrow t = 5$.
- 26) **The correct answer is 7.** (8.EE.A.2) $\sqrt[3]{343} = 7$ because $7 \times 7 \times 7 = 343$.



Hi, Number Sense Builder!

◇ Grade 8 mathematics connects numbers, algebra, geometry, and data. It helps you model linear change, compare functions, estimate irrational values, measure distance, and explain patterns. ◇

★ **Remember this:** You practiced listening to that story. When the answer makes sense in the situation, your math becomes much stronger. This version gave you 10 opportunities to rehearse test-day habits. ★

Number Sense Checks

- **Too Big?:** Compare with an estimate.
- **Too Small?:** Use the context to judge.
- **Right Sign?:** Positive and negative values matter.
- **Right Unit?:** A number needs meaning.

Grade 8 test-day tip: Before choosing an answer, ask whether it fits the story of the problem.

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

Jay Daie

Your Number-Sense Friend

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

Perfect for classroom use, homework, test preparation, and extra practice at home.



THIS BOOK INCLUDES:

10

Full-Length
Printed Tests

2

Online
Practice Tests



Detailed Answers
& Explanations



MORE PRACTICE. GREATER RESULTS.

Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

WHAT YOU'LL GAIN



Build Confidence

Practice regularly to feel prepared and test-ready.



Master Key Skills

Develop strong math skills and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Strategies

Learn proven strategies to approach every question with confidence.



Boost Performance

Apply your knowledge and achieve your best score!

TOPICS COVERED

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



2 ONLINE TESTS

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



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY