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Idaho ISAT

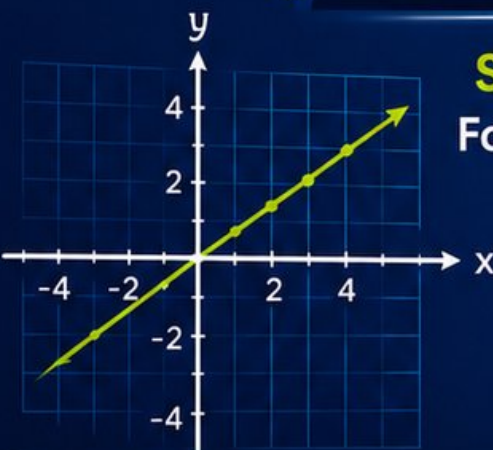
GRADE 8

MATH

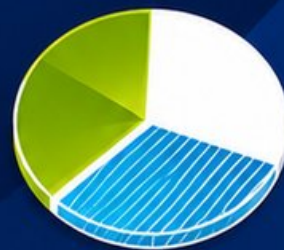
PRACTICE TESTS

$$a^2 + b^2 = c^2$$
$$\sqrt{x}$$

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$V = s^3$$



$$y = mx + b$$
$$2x + 5 = 13$$
$$x = 4$$



3

**PRINTED
TESTS**

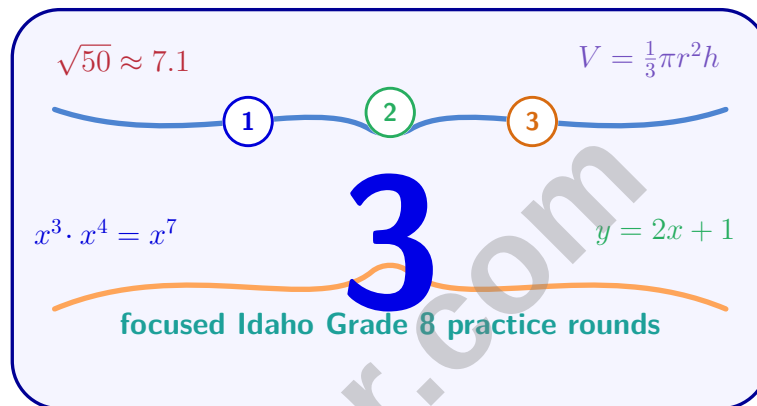
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**ONLINE
TESTS**

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

3 Idaho ISAT Grade 8 Math Practice Tests

Focused Practice for ISAT Grade 8 Math Readiness



Three complete 40-question Grade 8 ISAT 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, Idaho Grade 8 Problem Solver!

Three focused rounds for sharper ISAT math thinking

This book gives you three full Grade 8 ISAT 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 Idaho 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 three-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.

Idaho 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?

Three ISAT tests, 120 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Test 3	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
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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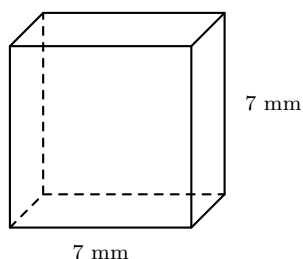
Table of Contents



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- 1) A concert sells premium tickets at \$60 and economy tickets at \$20. A total of 300 tickets sold for \$12,000. How many premium tickets were sold?

- ☐ A. 75 ☐ C. 125
☐ B. 100 ☐ D. 150



2)

The cube shown has an edge length of 7 mm. Calculate its surface area.

- ☐ A. 49 mm² ☐ C. 294 mm²
☐ B. 196 mm² ☐ D. 343 mm²

- 3) The mass of the Sun is approximately 2×10^{30} kg. How many times more massive is the Sun than Earth, which has mass 6×10^{24} kg?

- 4) When a point is reflected across the y -axis, which coordinate(s) change?

- ☐ A. Only the x -coordinate ☐ C. Both x and y change
☐ B. Only the y -coordinate ☐ D. Neither coordinate changes



5) Which equation represents a line with slope 4 and y -intercept 6?

☐ A. $y = 6x + 4$

☐ C. $y = 4x - 6$

☐ B. $y = -4x + 6$

☐ D. $y = 4x + 6$

6) Which equation has the solution $x = 2$?

☐ A. $3x + 4 = 11$

☐ C. $2x + 3 = 7$

☐ B. $5x - 1 = 12$

☐ D. $4x - 2 = 10$

7) Solve: $-x \leq 5$

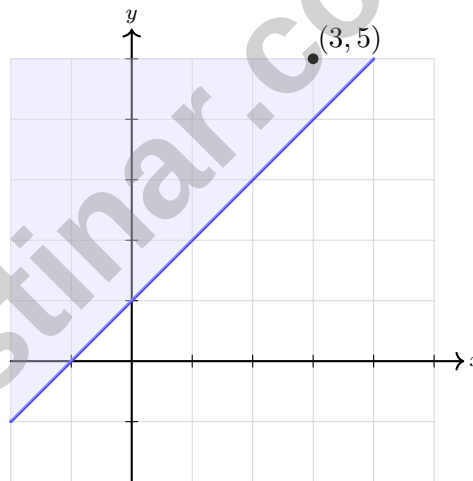
☐ A. $x \leq -5$

☐ C. $x \geq -5$

☐ B. $x \leq 5$

☐ D. $x \geq 5$

8)



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

☐ A. $y > x + 1$

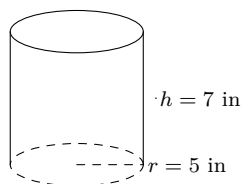
☐ C. $y < x + 1$

☐ B. $y \geq x + 1$

☐ D. $y \leq x + 1$



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9)

A cylinder with radius 5 in and height 7 in is shown. What is its volume? (Use $\pi \approx 3.14$.)

☐ A. 109.9 in^3
☐ C. 549.5 in^3
☐ B. 219.8 in^3
☐ D. 1099 in^3

10) A rental agency charges $C = 0.35m + 50$, where C is cost in dollars and m is miles. Which statement BEST explains the practical meaning of 0.35?

☐ A. The company charges \$0.35 per mile driven

☐ C. For every 0.35 miles, the cost increases by \$1

☐ B. The company charges a \$50 deposit that covers 0.35 miles

☐ D. The daily rental rate is \$0.35

11) Express $0.12\overline{3}$ as a fraction.

12) A gift of \$2,000 is offered in two ways: receive \$200 cash now or invest it at 8% simple interest for 1 year. Which choice results in more money after 1 year?

☐ A. Cannot determine without more information

☐ C. Both result in the same amount

☐ B. Invest at 8% for 1 year; total will be \$2,160

☐ D. Receive \$200 cash now; total will be \$2,200


1) Which value is equivalent to 7.5×10^6 ?

☐ A. 7.5,000

☐ C. 75,000,000

☐ B. 750,000

☐ D. 7,500,000

2) Convert $0.4\overline{18}$ to a fraction in simplest form.

☐ A. $\frac{4}{18}$

☐ C. $\frac{418}{999}$

☐ B. $\frac{418}{1000}$

☐ D. $\frac{414}{990} = \frac{23}{55}$

3) Which is larger: $\sqrt{15}$ or $\sqrt{14}$?

☐ A. They are equal

☐ C. $\sqrt{14}$

☐ B. Cannot compare

☐ D. $\sqrt{15}$

4) Which is the best estimate of $\sqrt{7}$?

☐ A. 2.1

☐ C. 3.5

☐ B. 7.0

☐ D. 2.6

5) A camping tent is shaped like a triangular prism with a triangular base having a base of 6 feet and height 4 feet. The tent extends 8 feet in length. The two slant edges of the triangular face are each 5 feet. If the tent is completely enclosed (including the floor), what is the total surface area of fabric needed?

☐ A. 88 sq. ft.

☐ C. 128 sq. ft.

☐ B. 112 sq. ft.

☐ D. 152 sq. ft.

6) A point P is at $(5, 3)$. After a translation of $(-2, 4)$, the point moves to P' . What is the distance from P to P' ?

☐ A. $\sqrt{5}$ units

☐ C. 6 units

☐ B. $\sqrt{20}$ units

☐ D. $\sqrt{45}$ units



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7) Two lines are parallel. If one line has equation $y = 4x - 2$, which could be the equation of the other line?

☐ A. $y = -4x + 7$

☐ C. $y = -\frac{1}{4}x + 5$

☐ B. $y = 2x + 4$

☐ D. $y = 4x + 9$

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

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

9) Look at the table of values for the equation $y = 2x + 1$:

x	y
1	3
2	5
?	9

What value of x produces $y = 9$?

☐ A. $x = 3$

☐ C. $x = 8$

☐ B. $x = 5$

☐ D. $x = 4$

10) Which inequality represents “the product of a number and -2 is greater than 8 ”?

☐ A. $-2x > 8$

☐ C. $-2x < 8$

☐ B. $2x > 8$

☐ D. $x > -4$



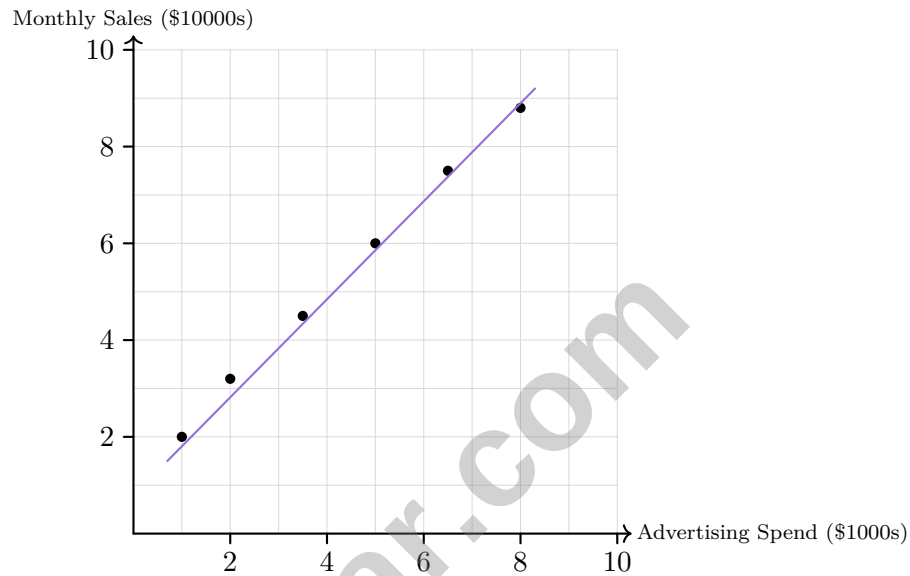
1) Function from $(0, 12)$ to $(3, 0)$. Slope is?

☐ A. -4

☐ C. 3

☐ B. -3

☐ D. 4



2)

A business tracks advertising spend versus monthly sales. Based on the trend line, what is the approximate y -intercept (sales with no advertising)?

☐ A. \$30,000

☐ C. \$10,000

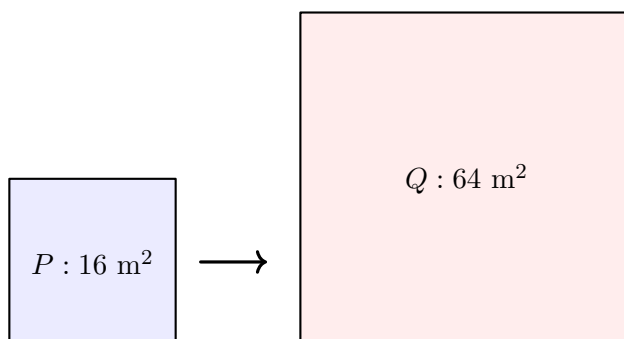
☐ B. \$20,000

☐ D. \$0



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- 3) Figure P has area 16 m^2 and Figure Q (similar to P) has area 64 m^2 . What is the scale factor from P to Q ?



- ☐ A. 2
☐ B. 4
☐ C. 8
☐ D. 16
- 4) The table shows $f(x)$. If $f(x) = 8$, what is x ?

x	1	2	3	4
$f(x)$	4	6	8	10

- ☐ A. 1
☐ B. 2
☐ C. 3
☐ D. 4
- 5) The product of two irrational numbers is:
- ☐ A. Always rational
☐ B. Always irrational
☐ C. Could be either rational or irrational
☐ D. Always negative
- 6) Which equals $0.\overline{54}$?

- ☐ A. $\frac{54}{100}$
☐ B. $\frac{27}{50}$
☐ C. $\frac{54}{90}$
☐ D. $\frac{54}{99} = \frac{6}{11}$



Idaho ISAT 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 Idaho ISAT practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.G.C) Let p = premium tickets and e = economy tickets. Then $p + e = 300$ and $60p + 20e = 12000$. From the first: $e = 300 - p$. Substituting: $60p + 20(300 - p) = 12000$, so $60p + 6000 - 20p = 12000$, giving $40p = 6000$ and $p = 150$.
- 2) **Choice C is correct.** (8.G.C.9) Surface area of a cube = $6s^2 = 6(7)^2 = 6(49) = 294 \text{ mm}^2$. Distractors: 49 (one face only), 196 (only 4 faces), 343 (edge cubed, confusing with volume).
- 3) **The correct answer is 3.33×10^5 .** (8.EE.A.3) Divide: $\frac{2 \times 10^{30}}{6 \times 10^{24}} = \frac{2}{6} \times 10^6 = \frac{1}{3} \times 10^6 \approx 3.33 \times 10^5$.
- 4) **Choice A is correct.** (8.G.A.1) Reflection across the y -axis uses the rule $(x, y) \rightarrow (-x, y)$. Only the sign of x changes; the y -coordinate stays the same. (Coordinate swapping is reflection across $y = x$, not the y -axis.)
- 5) **Choice D is correct.** (8.EE.B.6) Using $y = mx + b$ where m is slope and b is y -intercept: $y = 4x + 6$.
- 6) **Choice C is correct.** (8.EE.C.7) Check by substitution: A: $3(2) + 4 = 10 \neq 11$ ✗. B: $5(2) - 1 = 9 \neq 12$ ✗. C: $2(2) + 3 = 7$ ✓. D: $4(2) - 2 = 6 \neq 10$ ✗. Only C is satisfied.
- 7) **Choice C is correct.** (8.EE.C.7) Multiply by -1 (FLIP): $x \geq -5$.
- 8) **Choice B is correct.** (8.G.B.8) The solid line (boundary included) with shading ABOVE indicates $y \geq x + 1$. Verify: $(3, 5)$ gives $5 \geq 3 + 1 = 4$ ✓ TRUE.
- 9) **Choice C is correct.** (8.G.C.9) $V = \pi r^2 h = 3.14 \times 5^2 \times 7 = 3.14 \times 25 \times 7 = 549.5 \text{ in}^3$.
- 10) **Choice A is correct.** (8.SP.A.3) The slope 0.35 is the rate of change. Each additional mile increases cost by \$0.35.
- 11) **The correct answer is $\frac{37}{300}$.** (8.NS.A.1) Set $x = 0.12\bar{3} = 0.12333\dots$. Then $100x = 12.\bar{3}$ and $1000x = 123.\bar{3}$. Subtracting: $900x = 111$, so $x = \frac{111}{900} = \frac{37}{300}$.
- 12) **Choice D is correct.** (8.G.B.7) Cash option: $\$2,000 + \$200 = \$2,200$. Investment option: $I = 2000 \times 0.08 \times 1 = \160 ; total = $\$2,160$. Receiving cash now is better.
- 13) **Choice C is correct.** (8.EE.A.1) When exponents are equal: $\frac{t^9}{t^9} = t^{9-9} = t^0 = 1$ (for $t \neq 0$).
- 14) **Choice C is correct.** (8.EE.A.2) Area = 256, so $s = \sqrt{256} = 16 \text{ m}$. Perimeter = $4s = 4 \times 16 = 64 \text{ m}$.
- 15) **Choice C is correct.** (8.EE.A.4) Check: $\frac{5}{1.5} \approx 3.33$ and $10^{-15-(-20)} = 10^5$. So the answer is approximately 3.3×10^5 .
- 16) **Choice C is correct.** (8.EE.B.5) Proportional relationship: $y = 3x$. For $x = 12$: $y = 3(12) = 36$ gallons.
- 17) **Choice D is correct.** (8.EE.C) The two lines intersect at the marked point. Verify: $y = -3 + 5 = 2$ ✓ and $y = \frac{3}{4}(3) - \frac{1}{4} = \frac{9}{4} - \frac{1}{4} = 2$ ✓.
- 18) **The correct answer is 12.96.** (8.NS.A.2) $(3.6)^2 = 12.96$, which is slightly less than 13.
- 19) **Choice C is correct.** (8.F.A.1) Each barcode corresponds to a product, but the price can change multiple times, giving the barcode multiple price outputs. The other options satisfy the one-input-one-output rule.
- 20) **Choice B is correct.** (8.F.A.3) $y = 3x - \frac{1}{5}$ is in the form $y = mx + b$ with $m = 3$ and $b = -\frac{1}{5}$, so it is linear.
- 21) **The correct answer is A, C.** (8.NS.A.1) Statement A is true because rational numbers are closed under addition. Statement C is true because any terminating decimal, such as $0.75 = \frac{3}{4}$, is rational. Statement B is false because two irrational numbers can multiply to a rational number, for example $\sqrt{2} \times \sqrt{8} = 4$. Statement D is false because integers are rational. Statement E is false because perfect squares have rational square roots, not irrational ones.
- 22) **The correct answer is 22.0.** (8.NS.A.2) Circumference = $\pi d \approx 3.14 \times 7 = 21.98 \approx 22.0 \text{ cm}$.
- 23) **Choice A is correct.** (8.F.B.4) Initial altitude is 200 cm (intercept). Altitude decreases by 5 cm per second (negative slope). Equation: $h = -5t + 200$.
- 24) **Choice D is correct.** (8.F.B.5) From $x = 0$ to $x = 3$, the function values drop from 5 to 2, so the function is decreasing over this interval.
- 25) **Choice B is correct.** (8.G.A.2) Figures A and C are both 4×2 rectangles. Figure B is a 2×2 square, so it is not congruent to either rectangle.
- 26) **Choice A is correct.** (8.G.A.3) The rule for 270° counterclockwise rotation is $(x, y) \rightarrow (y, -x)$. So $(4, -3) \rightarrow (-3, -4)$.



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Hi, Grade 8 Math Star!

◇ You finished this practice set with real effort. Grade 8 math asks you to connect ideas, explain your thinking, and stay steady through multi-step problems. ◇

★ **Remember this:** Every page you completed helped build stronger habits: reading carefully, choosing a method, showing work, and checking whether the answer makes sense. You practiced across 3 full Grade 8 practice tests, and that repeated effort matters. ★

What You Built

- **Focus:** You stayed with challenging questions.
- **Accuracy:** You learned to slow down when details matter.
- **Reasoning:** You practiced explaining why a method works.
- **Readiness:** You are more prepared than when you started.

Grade 8 test-day tip: Before test day, review the questions that made you pause. Those are the best teachers.

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

Jay Daie

Your Grade 8 Math Friend

PRACTICE TODAY, ACHIEVE TOMORROW!

GRADE
8

Give your child the edge they need with **3 full-length** Grade 8 Math practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, boosting confidence, and preparing for 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!



2 Extra Online Practice Tests Included!

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

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PRACTICE. PREPARE. SUCCEED.



Testinar

More Practice. More Confidence.
Better Results.