

6 Idaho ISAT

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS



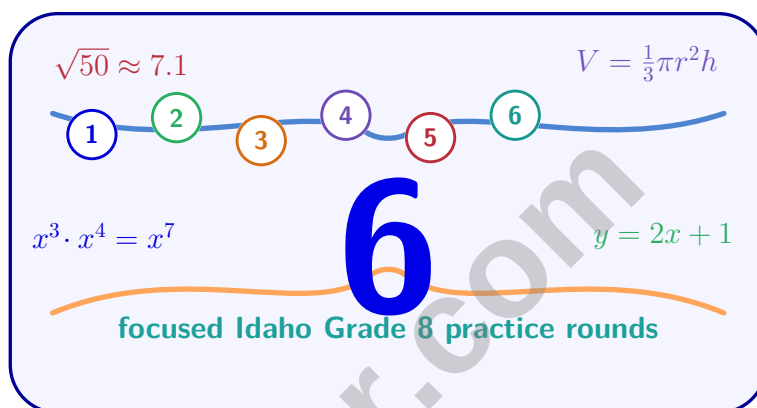
2 ONLINE
TESTS



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

6 Idaho ISAT Grade 8 Math Practice Tests

State-Aligned Grade 8 Math Prep with Review and Detailed Answer Support



Six 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



Copyright ©

Testinar Inc



Published by Testinar Inc

Testinar.com

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law, including Section 107 or 108 of the 1976 United States Copyright Act.

This publication is independently produced and has no official connection to any state, district, or national testing program.

Test names and organizational names used herein are the property of their respective trademark holders.



Copyright ©

Welcome, Idaho Grade 8 Problem Solver!

Six focused rounds for sharper ISAT math thinking

This book gives you six 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 six-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?

Six ISAT tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

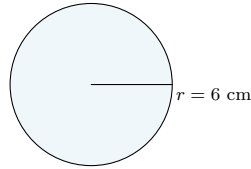
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	30
★ Practice Test 3	_____	45
★ Practice Test 4	_____	61
★ Practice Test 5	_____	76
★ Practice Test 6	_____	93
Practice Test Answer Keys	_____	109
Practice Test Answers and Explanations	_____	113



1)

A sphere has a radius of 6 cm. Approximately, what is its volume? Use $\pi \approx 3.14$.

- ☐ A. 226.08 cm^3 ☐ C. 904.32 cm^3
☐ B. 452.16 cm^3 ☐ D. 1130.4 cm^3

2) Which expression equals a rational number?

- ☐ A. $\sqrt{2} \times \sqrt{3}$ ☐ C. $\sqrt{3} + \sqrt{3}$
☐ B. $\sqrt{4} + \sqrt{5}$ ☐ D. $\sqrt{9} \times \sqrt{4}$

3) Is $\sqrt{27}$ greater than or less than 5.2?

- ☐ A. Cannot be determined ☐ C. Less than
☐ B. Equal to ☐ D. Greater than

4) Which is the best estimate of 4π ?

- ☐ A. 8.0 ☐ C. 12.56
☐ B. 10.56 ☐ D. 14.0

5) Sarah wants to buy a car for \$15,000. She can pay cash or finance it at 7% APR over 5 years. What is the total finance cost (interest only)?

- ☐ A. \$1,050 ☐ C. \$5,250
☐ B. \$2,100 ☐ D. \$10,500



6) If $x = 2$, evaluate $\frac{(x^3)^2}{x^4}$.

☐ A. 2

☐ C. 16

☐ B. 64

☐ D. 4

7) Two trend-line slopes are 1.2 and 1.1. What is their difference?

8) If $x^3 = 125$, what is x ?

☐ A. 4

☐ C. 6

☐ B. 7

☐ D. 5

9) Which error did the student make when converting 0.000891 to scientific notation?

Student wrote: 8.91×10^{-3} instead of 8.91×10^{-4} .

☐ A. Moved decimal the wrong direction

☐ C. Wrong sign on exponent

☐ B. Coefficient outside [1, 10)

☐ D. Counted decimal places incorrectly

10) Compute $\frac{(9 \times 10^5) + (3.6 \times 10^5)}{4 \times 10^2}$. Express in scientific notation.

☐ A. 3.15×10^2

☐ C. 12.6×10^3

☐ B. 3.15×10^4

☐ D. 3.15×10^3



Scan me!

For more practice
& answers

- 11) A student expands $(x - 4)^2$ and gets $x^2 - 16$. What is the error?
- ☐ A. Missing the middle term. ☐ C. Used subtraction instead of FOIL.
- ☐ B. Forgot to square the coefficient of x . ☐ D. The answer is correct; there is no error.
- 12) Real-world extrapolation: Email subscribers grow as $S(d) = 150 + 40d$ per day. Competitor at day 5 has 500 subscribers, day 10 has 700. Which will have more subscribers at day 15?
- ☐ A. First email service ☐ C. Both equal
- ☐ B. Competitor ☐ D. Cannot determine
- 13) A rhombus has all four sides equal to 8 cm. After being reflected across the y -axis, what is the length of each side of the reflected rhombus?
- ☐ A. The sides change length ☐ C. 16 cm
- ☐ B. 4 cm ☐ D. 8 cm
- 14) A cell phone plan costs \$20 per month plus \$0.10 per text message. If cost is graphed against number of texts sent (x-axis texts, y-axis cost in \$), what is the slope?
- ☐ A. \$20 per text ☐ C. 20 texts per dollar
- ☐ B. \$20.10 per text ☐ D. \$0.10 per text
- 15) Two boats leave a dock at the same time, traveling in opposite directions. One boat travels at 20 mph and the other at 15 mph. In how many hours are they 105 miles apart?
- ☐ A. 2.5 hours ☐ C. 3 hours
- ☐ B. 4 hours ☐ D. 5 hours



1) $\frac{6 \times 10^5}{2 \times 10^{10}} = ?$

☐ A. 12×10^{-5}

☐ C. 3×10^5

☐ B. 8×10^{-5}

☐ D. 3×10^{-5}

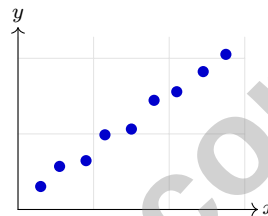
2) A square has area 9 cm^2 . If the square is dilated by a scale factor of 3, what is the area of the dilated square?

☐ A. 27 cm^2

☐ C. 9 cm^2

☐ B. 81 cm^2

☐ D. 36 cm^2



3)

In a scatter plot with 50 data points, the line of best fit passes exactly through 12 points. The other 38 points stay fairly close to the line, with 19 points above it and 19 points below it. This distribution suggests:

☐ A. Very weak correlation

☐ C. Moderate to strong correlation

☐ B. No correlation

☐ D. Perfect linear relationship

4) A two-way table of 120 people shows:

	Owens Car	No Car	Total
Urban	24	36	60
Rural	45	15	60
Total	69	51	120

What is the joint frequency of rural people who own a car?

☐ A. $\frac{60}{120}$

☐ C. $\frac{45}{120}$

☐ B. $\frac{45}{60}$

☐ D. $\frac{45}{69}$



Scan me!
For more practice
& answers

5)

Points	20	25	30	35
--------	----	----	----	----

Four games scored as shown. The mean is 27.5 points. What is the MAD?

☐ A. 4☐ C. 5.625☐ B. 5☐ D. 6.25

6) A student has a 0.8 probability of passing math and 0.7 probability of passing English. If these are independent, what is the probability of passing both?

☐ A. 0.56☐ C. 0.75☐ B. 1.5☐ D. 0.80

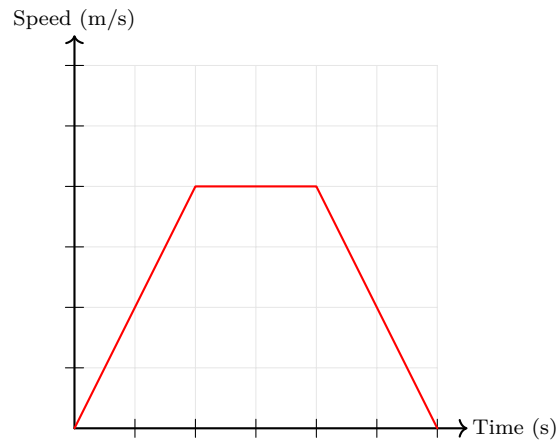
7) Two lines intersect. One angle is 82° . What is the measure of an adjacent angle?

8) A student arranges 5 cards in a line. The first card can be any of the 5. The second can be any of the remaining, and so on. How many different arrangements are possible?

☐ A. $5^5 = 3,125$ ☐ C. $5 \times 4 \times 3 \times 2 \times 1 = 120$ ☐ B. $5 + 4 + 3 + 2 + 1 = 15$ ☐ D. $\binom{5}{5} = 1$

9) A data set has residuals: $-3, 2, -1, 4, -2$. Which statement is true?

☐ A. The sum of residuals is 5☐ C. All points lie exactly on the trend line☐ B. The mean absolute residual (MAD) is 2.4☐ D. The trend line is a poor fit because some residuals are negative



1)

A car accelerates, maintains constant speed, then brakes. Which intervals match?

- ☐ A. Accelerate $[0,2]$, constant $[2,4]$, brake $[4,6]$
☐ C. Brake $[0,2]$, constant $[2,4]$, accelerate $[4,6]$
- ☐ B. Constant $[0,2]$, accelerate $[2,4]$, brake $[4,6]$
☐ D. Accelerate $[0,4]$, brake $[4,6]$, constant after

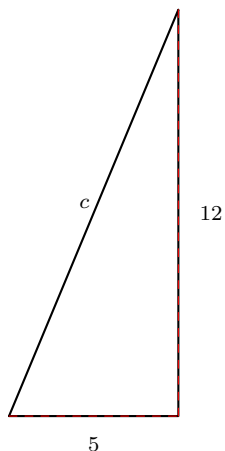
2) A student claims the line through $(1,3)$ and $(3,6)$ has slope $\frac{2}{3}$. What error did the student make?

- ☐ 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



Scan me!
For more practice
& answers

- 3) If a right triangle has legs of length 5 and 12, which is the length of the hypotenuse?



- ☐ A. $\sqrt{170}$ ☐ C. 7
- ☐ B. 17 ☐ D. 13
- 4) A proportional relationship passes through $(0,0)$ and $(3,12)$. What is the constant of proportionality k ? (Give your answer as a simplified fraction or decimal.)

- 5) What is the sum of the interior angles of a decagon (10-sided polygon)?

- ☐ A. 1800° ☐ C. 1620°
- ☐ B. 1260° ☐ D. 1440°



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.



Scan me!
For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (8.G.C.9) Volume of a sphere: $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 6^3 = \frac{4}{3} \times 3.14 \times 216 = \frac{4}{3} \times 678.24 = 904.32 \text{ cm}^3$.
- 2) **Choice D is correct.** (8.NS.A.1) $\sqrt{9} \times \sqrt{4} = 3 \times 2 = 6$, which is rational. The other expressions yield irrationals: $\sqrt{3} + \sqrt{3} = 2\sqrt{3}$, $\sqrt{4} + \sqrt{5} = 2 + \sqrt{5}$, and $\sqrt{2} \times \sqrt{3} = \sqrt{6}$.
- 3) **Choice C is correct.** (8.NS.A.2) $(5.2)^2 = 27.04 > 27$, so $5.2 > \sqrt{27}$. Therefore $\sqrt{27} < 5.2$.
- 4) **Choice C is correct.** (8.NS.A.2) $4\pi \approx 4 \times 3.14 = 12.56$.
- 5) **Choice C is correct.** (8.G.B.7) Interest: $I = 15000 \times 0.07 \times 5 = \$5,250$.
- 6) **Choice D is correct.** (8.EE.A.1) $(x^3)^2 = x^6$; then $\frac{x^6}{x^4} = x^2$. Substitute $x = 2$: $2^2 = 4$.
- 7) **The correct answer is 0.1.** (8.SP.A.2) Compute $1.2 - 1.1 = 0.1$.
- 8) **Choice D is correct.** (8.EE.A.2) $5 \times 5 \times 5 = 125$, so $\sqrt[3]{125} = 5$.
- 9) **Choice D is correct.** (8.EE.A.3) 0.000891 requires moving the decimal 4 places right to get 8.91, so it is 8.91×10^{-4} , not 8.91×10^{-3} .
- 10) **Choice D is correct.** (8.EE.A.4) Add first: $(9 + 3.6) \times 10^5 = 12.6 \times 10^5 = 1.26 \times 10^6$. Then divide: $\frac{1.26 \times 10^6}{4 \times 10^2} = 0.315 \times 10^4 = 3.15 \times 10^3$.
- 11) **Choice A is correct.** (8.EE.C.7) $(x - 4)^2 = x^2 - 8x + 16$, not $x^2 - 16$. The student missed the middle term $-8x$ that comes from $2(x)(-4)$.
- 12) **Choice B is correct.** (8.F.A.2) $S(15) = 150 + 40(15) = 750$. Competitor slope: $(700 - 500)/5 = 40$ per day. From day 5 point: $C(d) = 500 + 40(d - 5) = 40d + 300$, so $C(15) = 40(15) + 300 = 900$. Since $900 > 750$, Competitor has more.
- 13) **Choice D is correct.** (8.G.A.2) Reflection is a rigid motion that preserves side lengths. The reflected rhombus has sides of 8 cm.
- 14) **Choice D is correct.** (8.EE.B.5) The slope is the rate of change of cost per additional text, which is \$0.10 per text. The \$20 is the y-intercept (fixed cost).
- 15) **Choice C is correct.** (8.G.C) When traveling in opposite directions, their speeds add. Combined speed: $20 + 15 = 35$ mph. Distance: $d = rt$, so $105 = 35t$, giving $t = 3$ hours.
- 16) **Choice B is correct.** (8.F.A.1) Find where the graph crosses the horizontal line $y = 2$. This occurs at the point $(2, 2)$, so $x = 2$.
- 17) **Choice B is correct.** (8.G.C.9) Lateral surface area $= 2\pi rh = 2\pi(5)(12) = 120\pi \text{ cm}^2$.
- 18) **The correct answer is A, C.** (8.G.A.4) Correct: (A) Corresponding angles are congruent — definition of similarity. (C) Corresponding sides are proportional — they scale by a constant factor k . Incorrect: (B) Equal length is congruence, not similarity. (D) Congruence requires equality; similarity allows scaling. (E) Scale factor can be any positive number; $k < 1$ is a reduction, still similarity.
- 19) **Choice A is correct.** (8.EE.B.6) The line passes through $(0, 4)$ and $(3, 1)$, so slope $= -1$ and $y = -x + 4$. For $x = 1$, the equation gives $y = 3$, so $(1, 3)$ is on the line.
- 20) **Choice D is correct.** (8.EE.C.7) After distributing $2(3x + 1) = 6x + 2$, you have $6x + 2 = 20$. The next step is to isolate the variable term by subtracting 2: $6x = 18$, then divide by 6 to get $x = 3$.
- 21) **Choice C is correct.** (8.G.A.1) A 45° clockwise rotation tilts all sides by 45° downward. A horizontal side becomes a line sloping downward at 45° (parallel to $y = -x$ region).
- 22) **The correct answer is $\frac{1}{2}$.** (8.G.B.7) Sample space: HH, HT, TH, TT. Exactly one heads: HT, TH. That's 2 of 4. $P = \frac{1}{2}$.
- 23) **Choice A is correct.** (8.EE.C.7) Add 6: $2x \leq 16$. Divide by 2: $x \leq 8$.
- 24) **Choice B is correct.** (8.G.B.8) DASHED line means $>$ or $<$. Shading BELOW means $y <$. Combined: $y < -x + 2$.
- 25) **Choice B is correct.** (8.SP.A.3) Extrapolation means predicting beyond observed data. Since only $q \in [1, 5]$ was observed, $q = 8$ requires extrapolation and carries risk.
- 26) **Choice C is correct.** (8.EE.B.5) Slope $k = \frac{3}{9} = \frac{1}{3}$. Equation: $y = \frac{1}{3}x$.



Scan me!
For more practice
& answers

Hi, Progress Maker!

◇ You have done more than complete a set of tests. You have rehearsed the habits that make Grade 8 math feel less surprising. ◇

★ **Remember this:** Progress is not always loud. Sometimes it looks like fewer careless errors, clearer work, better pacing, and more confidence when a problem is unfamiliar. You practiced across 6 full Grade 8 practice tests, and that repeated effort matters. ★

Signs of Growth

- **Clear Work:** Your steps are easier to follow.
- **Better Pacing:** You know when to move on and return.
- **Stronger Checks:** You catch mistakes earlier.
- **Calmer Thinking:** You know what to try next.

Grade 8 test-day tip: Keep one short list of mistakes you often make, then check that list before each practice session.

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

Jay Daie

Your Growth Coach

PRACTICE TODAY. ACHIEVE TOMORROW.

6

Give your child the confidence and skills they need with **6 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!

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.



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 |
| | ✓ And More! |



6 PRINTED TESTS



2 ONLINE TESTS



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