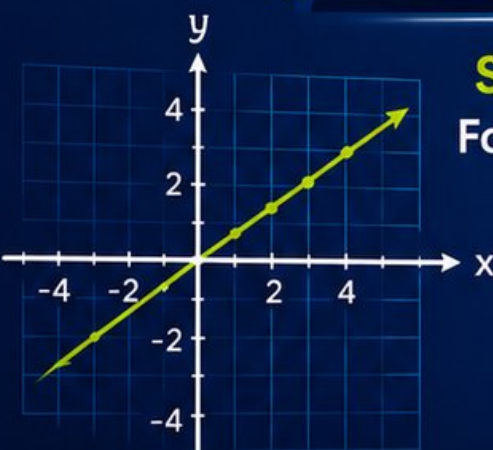


3 Iowa ISASP GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$V = s^3$$



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



3 PRINTED
TESTS



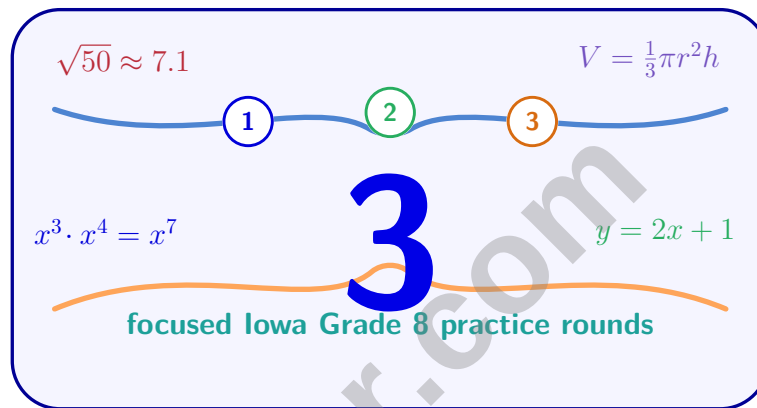
2 ONLINE
TESTS



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

3 Iowa ISASP Grade 8 Math Practice Tests

Standards-Aligned Iowa Review for Grade 8 Math Success



Three complete 40-question Grade 8 ISASP 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, Iowa Grade 8 Problem Solver!

Three focused rounds for sharper ISASP math thinking

This book gives you three full Grade 8 ISASP 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 Iowa 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.

Iowa 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 ISASP 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.



Scan me!
For more practice
& answers

Table of Contents



Testinar.com

1) A laptop costs \$1,200 cash. The store's installment offer is \$110/month for 12 months. Which analysis correctly explains why someone might choose installments despite the extra cost?

- | | |
|---|---|
| ☐ A. Installments save money (\$120 is refunded later) | ☐ C. Installments are always cheaper than paying cash |
| ☐ B. The store benefits, so customers should too | ☐ D. The customer doesn't have \$1,200 cash now but can afford \$110/month |

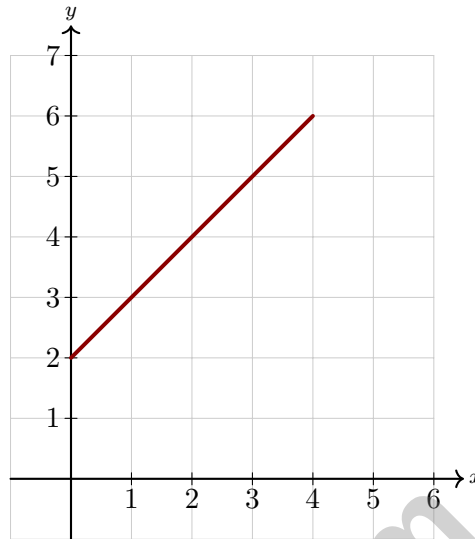
2) A cylinder has radius 1.5 inches and height 8 inches. What is the surface area? (Use $\pi \approx 3.14$.)

- | | |
|---|---|
| ☐ A. 28.3 in^2 | ☐ C. 75.4 in^2 |
| ☐ B. 47.1 in^2 | ☐ D. 89.5 in^2 |

3) Under which transformation would the image of a point (x, y) always lie on the opposite side of the origin from the original point?

- | | |
|---|---|
| ☐ A. Reflection across the x -axis | ☐ C. 180° rotation about the origin |
| ☐ B. Reflection across the y -axis | ☐ D. Translation 5 units right |





4)

What is the y -intercept of the line shown?

☐ A. 1☐ C. 3☐ B. 4☐ D. 25) Solve for x : $4x + 9 = 4x + 2$ ☐ A. $x = 7$ ☐ C. Infinitely many solutions☐ B. $x = -7$ ☐ D. No solution6) Which value does NOT satisfy $-3x + 4 < 7$?☐ A. $x = 0$ ☐ C. $x = 2$ ☐ B. $x = 1$ ☐ D. $x = -2$ 

Scan me!
For more practice
& answers

- 7) In the list 5.2×10^{-2} , 5.2×10^0 , 5.2×10^2 , 5.2×10^{-1} , what is the exponent of the smallest number?

- 8) A cone has the same radius and height as a cylinder. If the cylinder's volume is 450 cubic meters, what is the cone's volume?

- ☐ A. 150 m^3
☐ C. 900 m^3
☐ B. 225 m^3
☐ D. 1350 m^3

- 9) 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

- 10) Which expression is equivalent to $\frac{5^6}{5^2}$?

Expression	Value
A. 5^4	625
B. 5^3	125
C. 5^8	390,625
D. 5^{12}	244,140,625

- ☐ A. Option D
 ☐ C. Option C
☐ B. Option B
 ☐ D. Option A



- 1) Two runners train with proportional relationships. Runner A: $y = 6x$ (miles per hour y at time x in hours). Runner B: $y = 8x$. Who runs faster?

- ☐ A. Runner A
 ☐ C. They run at the same speed
☐ B. Cannot determine from the equations
 ☐ D. Runner B

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

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

- 3) Convert $0.\overline{18}$ to a fraction in simplest form.

- ☐ A. $\frac{1}{18}$
☐ C. $\frac{18}{90}$
☐ B. $\frac{18}{100}$
☐ D. $\frac{18}{99} = \frac{2}{11}$

- 4) Between which two consecutive integers does $\sqrt{53}$ lie?

- ☐ A. 6 and 7
 ☐ C. 8 and 9
☐ B. 5 and 6
 ☐ D. 7 and 8

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

- ☐ A. 7.5,000
 ☐ C. 75,000,000
☐ B. 750,000
 ☐ D. 7,500,000



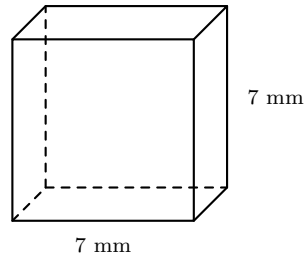
6) Which order is correct from smallest to largest?

☐ A. $\sqrt{5}, \sqrt{3}, \sqrt{6}, \sqrt{4}$

☐ B. $\sqrt{6}, \sqrt{5}, \sqrt{4}, \sqrt{3}$

☐ C. $\sqrt{4}, \sqrt{3}, \sqrt{5}, \sqrt{6}$

☐ D. $\sqrt{3}, \sqrt{4}, \sqrt{5}, \sqrt{6}$



7)

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

☐ A. 49 mm^2

☐ B. 196 mm^2

☐ C. 294 mm^2

☐ D. 343 mm^2



Scan me!
For more practice
& answers

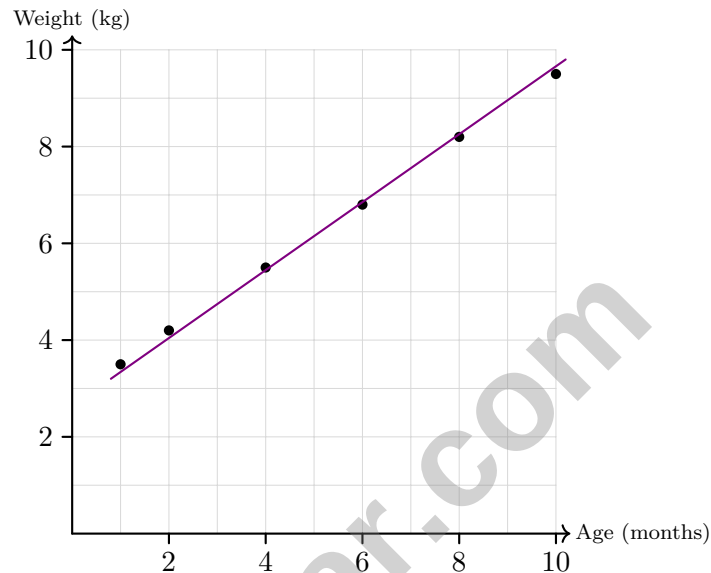
1) What is $\sqrt{196}$?

☐ A. 12

☐ C. 14

☐ B. 13

☐ D. 15



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

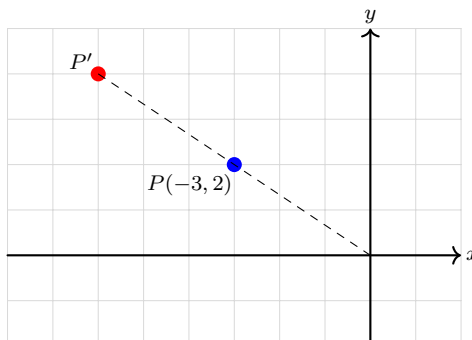
☐ C. 2.5 kg per month

☐ B. 0.50 kg per month

☐ D. 3.15 kg per month



- 3) Point $P(-3, 2)$ is dilated by scale factor 2 from the origin. What are the coordinates of P' ?



- ☐ A. $(-6, 4)$ ☐ C. $(6, -4)$
☐ B. $(-3, 4)$ ☐ D. $(-6, -4)$
- 4) If $f(x) = \frac{x+4}{2}$ and $f(x) = 5$, what is x ?
- ☐ A. 2 ☐ C. 6
☐ B. 4 ☐ D. 10
- 5) If a is rational and b is irrational, which must be true?
- ☐ A. $a + b$ is rational ☐ C. $b - a$ is rational
☐ B. $a \times b$ is rational ☐ D. $a + b$ is irrational



Scan me!
For more practice
& answers

Iowa ISASP 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 Iowa ISASP practice test.



Scan me!
For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.G.C.9) Total with installments: $110 \times 12 = \$1,320$ (cost is \$120 extra). Someone might choose this if they lack \$1,200 upfront but have steady monthly income. This illustrates the trade-off between affordability and cost.
- 2) **Choice D is correct.** (8.G.C.9) $SA = 2\pi r^2 + 2\pi rh = 2(3.14)(1.5)^2 + 2(3.14)(1.5)(8) = 14.13 + 75.36 = 89.49 \approx 89.5$ in².
- 3) **Choice C is correct.** (8.G.A.1) A 180° rotation maps $(x, y) \rightarrow (-x, -y)$, placing the image on the opposite side of the origin. Single reflections across axes do not have this property.
- 4) **Choice D is correct.** (8.EE.B.6) The y -intercept is where the line crosses the y -axis, which occurs at $(0, 2)$.
- 5) **Choice D is correct.** (8.EE.C.7) Subtract $4x$ from both sides: $9 = 2$, which is false. This equation has no solution.
- 6) **Choice D is correct.** (8.EE.C.7) Solving: $-3x < 3$, so $x > -1$. Testing: $x = -2$ gives $-3(-2) + 4 = 10 \not< 7$ (false). So $x = -2$ does not satisfy.
- 7) **The correct answer is -2 .** (8.EE.A.3) With the same coefficient, the smallest power has the smallest exponent: -2 .
- 8) **Choice A is correct.** (8.G.C.9) Since $V_{\text{cone}} = \frac{1}{3}V_{\text{cyl}}$, the cone's volume is $\frac{1}{3} \times 450 = 150$ m³.
- 9) **Choice C is correct.** (8.SP.A.3) Substitute $n = 100$: $C = 2(100) + 50 = 200 + 50 = \250 .
- 10) **Choice D is correct.** (8.EE.A.1) $\frac{5^6}{5^2} = 5^{6-2} = 5^4 = 625$.
- 11) **Choice D is correct.** (8.EE.A.4) Multiply coefficients: $5 \times 4 = 20$. Add exponents: $10^{7+3} = 10^{10}$. Rewrite $20 \times 10^{10} = 2 \times 10^{11}$.
- 12) **Choice D is correct.** (8.EE.C) When two equations represent the same line, every point on that line is a solution to the system. Therefore, there are infinitely many solutions.
- 13) **Choice A is correct.** (8.EE.C.7) FOIL: $(4x - 3)(x + 2) = 4x^2 + 8x - 3x - 6 = 4x^2 + 5x - 6$.
- 14) **Choice B is correct.** (8.EE.B.6) DASHED line means $>$ or $<$. Shading BELOW means $y <$. Combined: $y < -x + 2$.
- 15) **The correct answer is $\frac{53}{90}$.** (8.NS.A.1) Set $x = 0.\overline{58} = 0.5888\dots$. Then $10x = 5.\overline{8}$ and $100x = 58.\overline{8}$. Subtracting: $90x = 53$, so $x = \frac{53}{90}$.
- 16) **Choice A is correct.** (8.F.A.1) Each vertical line at $x = a$ represents all points with that x -coordinate. If the line intersects the graph more than once, the input a has multiple outputs, violating the function definition.
- 17) **Choice A is correct.** (8.F.A.2) Week 1: $20 + 5(1) = 25$. Week 2: $20 + 5(2) = 30$. Week 3: $20 + 5(3) = 35$. Constant difference of 5 per week indicates linear with slope 5.
- 18) **The correct answer is A, C.** (8.NS.A.1) $\sqrt{169} = 13$ is rational (perfect square). The repeating decimal $0.777\dots = \frac{7}{9}$ is rational. The other values are irrational: $\sqrt{170}$ (non-perfect square), 2π (irrational multiple of π), and $\sqrt{2} + 1$ (irrational plus rational is irrational).
- 19) **Choice A is correct.** (8.F.B.4) Slope: $m = \frac{5-1}{3-1} = \frac{4}{2} = 2$. Using point $(1, 1)$: $1 = 2(1) + b \Rightarrow b = -1$. Equation: $y = 2x - 1$.
- 20) **Choice A is correct.** (8.F.B.5) The upward segment lasts 3 hours (0 to 3), and the downward segment also lasts 3 hours (5 to 8). Since the graph starts and ends at 0, the same height gained is later lost over the same amount of time, so the absolute values of the slopes are equal.
- 21) **Choice B is correct.** (8.G.A.2) Translation is a rigid motion, which preserves distances and angles. Therefore, quadrilateral A'B'C'D' is congruent to ABCD.
- 22) **Choice B is correct.** (8.G.A.3) The rule for 90° counterclockwise rotation is $(x, y) \rightarrow (-y, x)$. So $(6, 8) \rightarrow (-8, 6)$.
- 23) **Choice A is correct.** (8.G.B.6, 8.G.B.7) Using $a^2 + b^2 = c^2$: $14^2 + 48^2 = 196 + 2304 = 2500$, so $c = 50$ (scaled 7-24-25 triple).
- 24) **Choice B is correct.** (8.G.B.8) $d = \sqrt{(15-3)^2 + (19-4)^2} = \sqrt{12^2 + 15^2} = \sqrt{144 + 225} = \sqrt{369} \approx 19.2$ units. (Rounds to 19.)
- 25) **Choice B is correct.** (8.G.B.7) When corresponding angles are not congruent, the lines are not parallel. Corresponding angles are congruent only when lines are parallel.



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.

testinar.com/math8

PRACTICE. PREPARE. SUCCEED.



Testinar

More Practice. More Confidence.
Better **Results**.