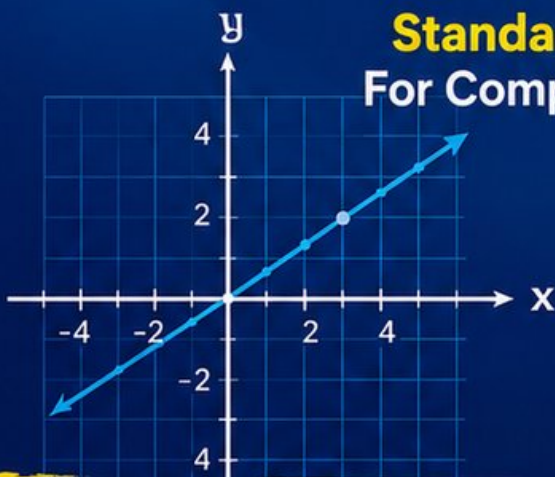
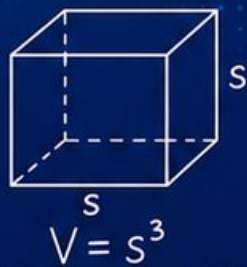


9 Iowa ISASP Grade 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$2x + 3y = 12$$
$$y = mx + b$$



**9 PRINTED
TESTS**

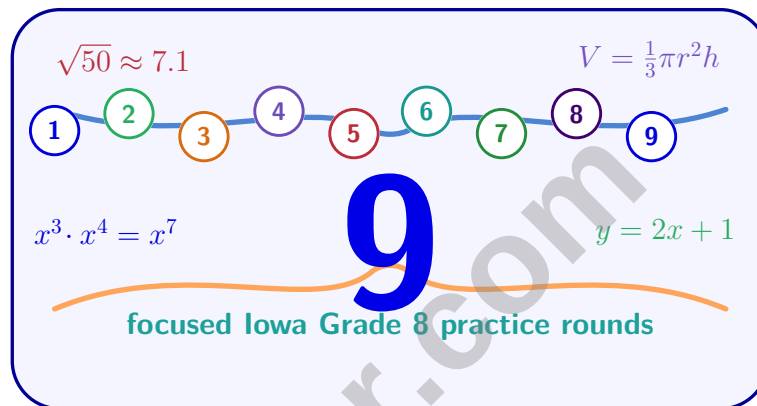


**2 ONLINE
TESTS**

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

9 Iowa ISASP Grade 8 Math Practice Tests

Iowa Grade 8 Review for Linear Thinking, Geometry, Probability, and Statistics



Nine 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!

Nine focused rounds for sharper ISASP math thinking

This book gives you nine 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 nine-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?

Nine ISASP tests, 360 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.
Tests 7–9	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.



Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	31
★ Practice Test 3	_____	47
★ Practice Test 4	_____	64
★ Practice Test 5	_____	80
★ Practice Test 6	_____	96
★ Practice Test 7	_____	111
★ Practice Test 8	_____	126
★ Practice Test 9	_____	142
Practice Test Answer Keys	_____	159
Practice Test Answers and Explanations	_____	165

1) If $f(x) = x - 3$ and $f(x) = 5$, what is x ?

☐ A. 2

☐ C. 5

☐ B. 8

☐ D. 15

2) A figure is rotated 45° clockwise about the origin. Which of the following best describes what happens to a side parallel to the x -axis?

☐ A. It remains parallel to the x -axis

☐ D. It becomes perpendicular to the y -axis

☐ B. It becomes parallel to the y -axis

☐ C. It tilts at a 45° angle below the horizontal

3) A line passes through $(1, 3)$ and has slope -1 . What is the y -intercept?

☐ A. 2

☐ C. -1

☐ B. 3

☐ D. 4

4) Solve for x : $3(x - 4) = 2x + 5$

☐ A. $x = -7$

☐ C. $x = 17$

☐ B. $x = 7$

☐ D. $x = 9$

5) Solve by elimination:
$$\begin{cases} 2x + 5y = 19 \\ 2x + y = 7 \end{cases}$$

☐ A. $(1, 5)$

☐ C. $(3, 1)$

☐ B. $(2, 3)$

☐ D. $(4, -1)$



6) Express 356,000 in scientific notation.

7) Solve: $-4x > 12$

☐ A. $x > -3$

☐ C. $x < -3$

☐ B. $x > 3$

☐ D. $x < 3$

8) Estimate $\sqrt{50}$ to the nearest tenth and explain how you found your estimate.

9) A clue box for factoring the trinomial shows:

$$x^2 + 9x + 20$$

Multiply: 20

Add: 9

Which expression completes the factorization?

☐ A. $(x + 4)(x + 5)$

☐ C. $(x - 4)(x - 5)$

☐ B. $(x + 9)(x + 20)$

☐ D. $x(x + 4)(x + 5)$

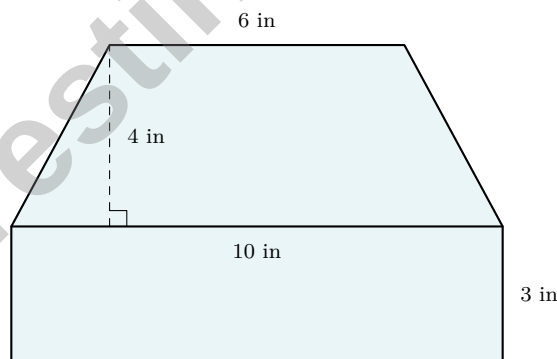


Scan me!
For more practice
& answers

- 10) For the inequality $2x + y > 6$, rearrange to slope-intercept form, identify the boundary line type, and determine the shading region.
- ☐ A. $y > -2x + 6$; solid line; shade above ☐ C. $y > -2x + 6$; dashed line; shade above
- ☐ B. $y < -2x + 6$; dashed line; shade below ☐ D. $y > 2x - 6$; dashed line; shade below
- 11) Of the following, which set contains a repeated input with different outputs?
- ☐ A. $\{(2, 3), (2, 5), (3, 4)\}$ ☐ C. $\{(4, 1), (5, 2), (6, 3)\}$
- ☐ B. $\{(1, 5), (2, 5), (3, 5)\}$ ☐ D. $\{(7, 2), (8, 2), (9, 2)\}$
- 12) Plant X : $H(d) = 2d + 10$ cm. Plant Y at days 0, 5, 10 has heights 15, 20, 25 cm. Which started taller?
- ☐ A. Plant X ☐ C. Both same.
- ☐ B. Plant Y ☐ D. Cannot be determined.
- 13) A plant grows such that its height is modeled by $h = 2t + 15$, where h is height in cm and t is time in weeks. Interpret the meaning of the number 2 in this equation.
- ☐ A. The plant starts at a height of 2 cm. ☐ C. The plant reaches a height of 2 cm.
- ☐ B. The plant grows 2 cm per week. ☐ D. The plant grows for 2 weeks total.
- 14) Pentagon JKLMN is congruent to pentagon PQRST. In pentagon JKLMN, all sides have equal length and each interior angle measures 108° . What can you conclude about pentagon PQRST?
- ☐ A. It is a regular pentagon ☐ C. Its interior angles are not 108°
- ☐ B. Its sides have different lengths ☐ D. It is smaller than JKLMN

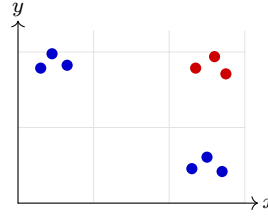


- 1) A student solves $-6x \geq -24$ and gets $x \geq 4$. What error did they make?
- ☐ A. Divided incorrectly ☐ C. Forgot to flip the inequality
☐ B. Subtracted instead of dividing ☐ D. Got the correct answer
- 2) In a survey of 250 voters, 120 voted yes on a proposition and 130 voted no. If 75 of the yes-voters are women, what is the relative frequency of men among yes-voters as a percent?
- ☐ A. 37.5% ☐ C. 62.5%
☐ B. 30% ☐ D. 48%
- 3) A pyramid with height 12 cm has a volume of 396 cm^3 . What is the area of its base?
- ☐ A. 33 cm^2 ☐ C. 99 cm^2
☐ B. 66 cm^2 ☐ D. 132 cm^2
- 4) A composite figure is an irregular pentagon that can be broken into a trapezoid (parallel sides 6 in and 10 in, height 4 in) and a rectangle (10 in by 3 in) sharing the longer base. What is the total area?



- ☐ A. 30 in^2 ☐ C. 62 in^2
☐ B. 60 in^2 ☐ D. 104 in^2





5)

Two groups appear in a scatter plot of video game experience (x-axis) versus reaction time (y-axis). Experienced players (many hours played) have fast reaction times (lower y-values). Inexperienced players (few hours played) have slow reaction times (higher y-values). What does this clustering pattern tell you about the relationship?

- ☐ A. More experience causes longer reaction times ☐ C. Reaction time improves with experience in a curved way
☐ B. Experience and reaction time are unrelated ☐ D. More experience is associated with faster reaction times

6) The data set is $\{1, 2, 3, 4, 5, 6\}$. What is the MAD? (Mean = 3.5)

- ☐ A. 1.5 ☐ C. 1.75
☐ B. 2 ☐ D. 2.5

7) A restaurant offers 5 types of bread, 4 types of cheese, and 3 types of meat. How many different sandwich combinations are possible if you pick one of each?

- ☐ A. 12 ☐ C. 35
☐ B. 20 ☐ D. 60

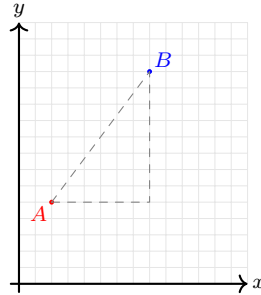
8) A meeting can be held at 2 different locations (downtown or uptown) and at 3 different times (morning, afternoon, or evening). How many possible meeting arrangements are there?

- ☐ A. $2 + 3 = 5$ ☐ C. $3 + 4 = 7$
☐ B. $2 \times 3 = 6$ ☐ D. $3^2 = 9$



Scan me!
For more practice
& answers

- 1) On a coordinate grid, point A is at $(2, 5)$ and point B is at $(8, 13)$. Use the distance formula to find the distance from A to B .



- ☐ A. 10 ☐ C. $\sqrt{90}$
☐ B. 14 ☐ D. 8
- 2) A rectangular prism has length 10 cm, width 6 cm, and height 4 cm. The lateral surface area (sides only, not top/bottom) is 128 cm^2 . What is the total surface area?
- ☐ A. 128 cm^2 ☐ C. 248 cm^2
☐ B. 188 cm^2 ☐ D. 308 cm^2
- 3) Evaluate $(x + 9)^2$ when $x = 1$.

- 4) A plant height model is $h = 3t + 8$, where h is height in inches and t is time in weeks. If the data only covers weeks 1 through 10, would predicting the height at week 15 be interpolation or extrapolation?
- ☐ A. Interpolation, because 15 is within the range ☐ C. Interpolation, because we can always predict
☐ B. Neither, because the model breaks down ☐ D. Extrapolation, because 15 is outside the data range



5) Which pair of expressions is equivalent?

Expression 1	Expression 2
A.	$x^2 \cdot x^3$ and x^6
B.	$(x^3)^2$ and x^5
C.	$\frac{x^6}{x^2}$ and x^4
D.	$x^4 + x^2$ and x^6

☐ A. Option A

☐ C. Option C

☐ B. Option B

☐ D. Option D

6) A garden has 8 flowers initially. Each week, 3 new flowers are planted. Which equation gives the total number of flowers f after w weeks?

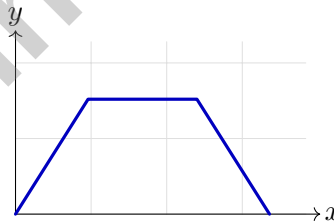
☐ A. $f = 3w + 8$

☐ C. $f = 11w$

☐ B. $f = 8w + 3$

☐ D. $f = 3w - 8$

7) 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. $(7, 0)$



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 B is correct.** (8.F.A.1) Solve $x - 3 = 5$ for x : $x = 5 + 3 = 8$.
- 2) **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).
- 3) **Choice D is correct.** (8.EE.B.6) Using $y = mx + b$: $3 = -1(1) + b$, so $3 = -1 + b$, thus $b = 4$.
- 4) **Choice C is correct.** (8.EE.C.7) Distribute: $3x - 12 = 2x + 5$. Subtract $2x$: $x - 12 = 5$. Add 12: $x = 17$. Check: $3(17 - 4) = 3(13) = 39$ and $2(17) + 5 = 39$ ✓. (Distractor B from forgetting to distribute the 3; D from arithmetic error.)
- 5) **Choice C is correct.** (8.EE.C) 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: $(3, 3)$.
- 6) **The correct answer is 3.56×10^5 .** (8.EE.A.3) Move the decimal 5 places left to get 3.56; since the original number is greater than 1, the exponent is positive 5.
- 7) **Choice C is correct.** (8.EE.C.7) Divide by -4 (FLIP the inequality): $x < \frac{12}{-4} = -3$.
- 8) **The correct answer is 7.1.** (8.NS.A.1) Since $7^2 = 49$ and $7.1^2 = 50.41$, we have $\sqrt{50}$ between 7.0 and 7.1, closer to 7.1. More precisely, $7.07^2 \approx 49.98 \approx 50$. To the nearest tenth, $\sqrt{50} \approx 7.1$.
- 9) **Choice A is correct.** (8.EE.C.7) Trinomial $x^2 + 9x + 20$ factors as $(x + 4)(x + 5)$ (multiply: $4 \cdot 5 = 20$, add: $4 + 5 = 9$).
- 10) **Choice C is correct.** (8.EE.B.6) Rearrange: $y > -2x + 6$. Strict inequality ($>$) → DASHED boundary. Since y is GREATER than the expression, shade ABOVE. Distractor A mistakes dashed for solid; B flips both inequality and shading; D has wrong slope.
- 11) **Choice A is correct.** (8.F.A.1) Option A repeats input 2 with two different outputs, 3 and 5. That means it contains a repeated input with different outputs.
- 12) **Choice B is correct.** (8.F.A.2) X at day 0: 10 cm. Y at day 0: 15 cm. Since $15 > 10$, Y started taller.
- 13) **Choice B is correct.** (8.F.B.4) In $h = mt + b$, the slope $m = 2$ represents the rate of change: 2 cm per week. The number 15 is the initial height (intercept).
- 14) **Choice A is correct.** (8.G.A.2) Since the pentagons are congruent, pentagon PQRST has the same properties as JKLMN: all sides are equal and all interior angles measure 108° . This makes it a regular pentagon.
- 15) **Choice D is correct.** (8.NS.A.2) $\sqrt{3} \approx 1.73$, so $\sqrt{3} + 1 \approx 2.73$, which falls between 2 and 3. Distractors A, C, and D represent underestimation, overestimation, and far overestimation of $\sqrt{3}$.
- 16) **Choice D is correct.** (8.G.C.9) M: $I = 1000 \times 0.04 \times 3 = \120 . N: $1000(1.02)^3 \approx 1061.21$, so interest $\approx \$61.21$. Account M is better.
- 17) **Choice D is correct.** (8.EE.A.1) $5^0 = 1$; $n^7 \cdot n^{-7} = n^{7-7} = n^0 = 1$. Product: $1 \cdot 1 = 1$.
- 18) **The correct answer is A, E.** (8.G.C.9) A is true because $V = 3.14(4^2)(10) = 502.4 \text{ cm}^3$. E is true because a cone's volume is one-third the volume of a cylinder with the same base and height. B is false because the sphere's volume is about 267.95 cm^3 , not the cylinder volume. C is false because the cone's volume with height 10 cm is about 167.47 cm^3 . D is false because a cylinder with height 6 cm has volume 301.44 cm^3 , which is greater than the sphere volume.
- 19) **Choice D is correct.** (8.EE.A.2) Volume $= s^3 = 343$, so $s = \sqrt[3]{343} = 7$ cm. One face is a square with side 7 cm, so area $= 7^2 = 49 \text{ cm}^2$.
- 20) **Choice D is correct.** (8.EE.A.4) Divide coefficients: $8 \div 2 = 4$. Subtract exponents: $10^{8-3} = 10^5$. Result: 4×10^5 .
- 21) **Choice D is correct.** (8.EE.B.5) Slope $= \frac{6}{5} = 1.2$. The line passes through $(0, 0)$ and $(5, 6)$.
- 22) **Choice B is correct.** (8.F.A.3) The differences are $120 - 60 = 60$, $180 - 120 = 60$, $240 - 180 = 60$. Constant differences mean this is a linear relationship with a speed of 60 mi/h.
- 23) **Choice B is correct.** (8.F.B.5) From 1 to 3: change $= (0 - 2)/(3 - 1) = -1$ per unit. From 3 to 5: change $= (3 - 0)/(5 - 3) = 1.5$ per unit (positive). The interval $[1, 3]$ has slope -1 , the steepest negative.
- 24) **Choice A is correct.** (8.G.A.3) $P(0, 1) \rightarrow P'(1, 4)$ means the translation is right 1 and up 3: $(x, y) \rightarrow (x + 1, y + 3)$.
- 25) **Choice C is correct.** (8.G.A.5) An exterior angle equals the sum of the two remote interior angles: $115 = 48 + x$, so $x = 67^\circ$.
- 26) **Choice B is correct.** (8.G.B.6, 8.G.B.7) The rope is the hypotenuse. Using $a^2 + b^2 = c^2$: $60^2 + 25^2 = 3600 + 625 = 4225$, so $c = 65$ feet (scaled 5-12-13 triple).



Scan me!
For more practice
& answers

One Last Encouragement

Hi, Determined Student!

◇ You did meaningful Grade 8 practice. That matters because confidence is built through action, not waiting until everything feels easy. This high-stamina book gave you nine substantial Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Carry this with you: you can learn hard things by breaking them into steps, asking good questions, and reviewing with honesty. ★

Take This With You

- **You Can Start:** Even when the problem looks big.
- **You Can Adjust:** When the first method is not enough.
- **You Can Learn:** From every corrected mistake.
- **You Can Improve:** One practice session at a time.

Grade 8 test-day tip: Walk into test day ready to think, not ready to be perfect. Thinking clearly is the goal.

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

Jay Daie

Your Grade 8 Math Friend

CONFIDENCE TODAY, SUCCESS TOMORROW!

GRADE

8

Help your child excel in math with **9 full-length Grade 8 practice tests** designed to reflect real test formats and cover all key math standards.

With a wide variety of questions and real-world applications, this book builds the skills and confidence students need to achieve their best!



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.

testinar.com/math8



PRACTICE. PREPARE. SUCCEED.



Testinar

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