4 Iowa ISASP PRACTICE TESTS

GRADE 7 MATH

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

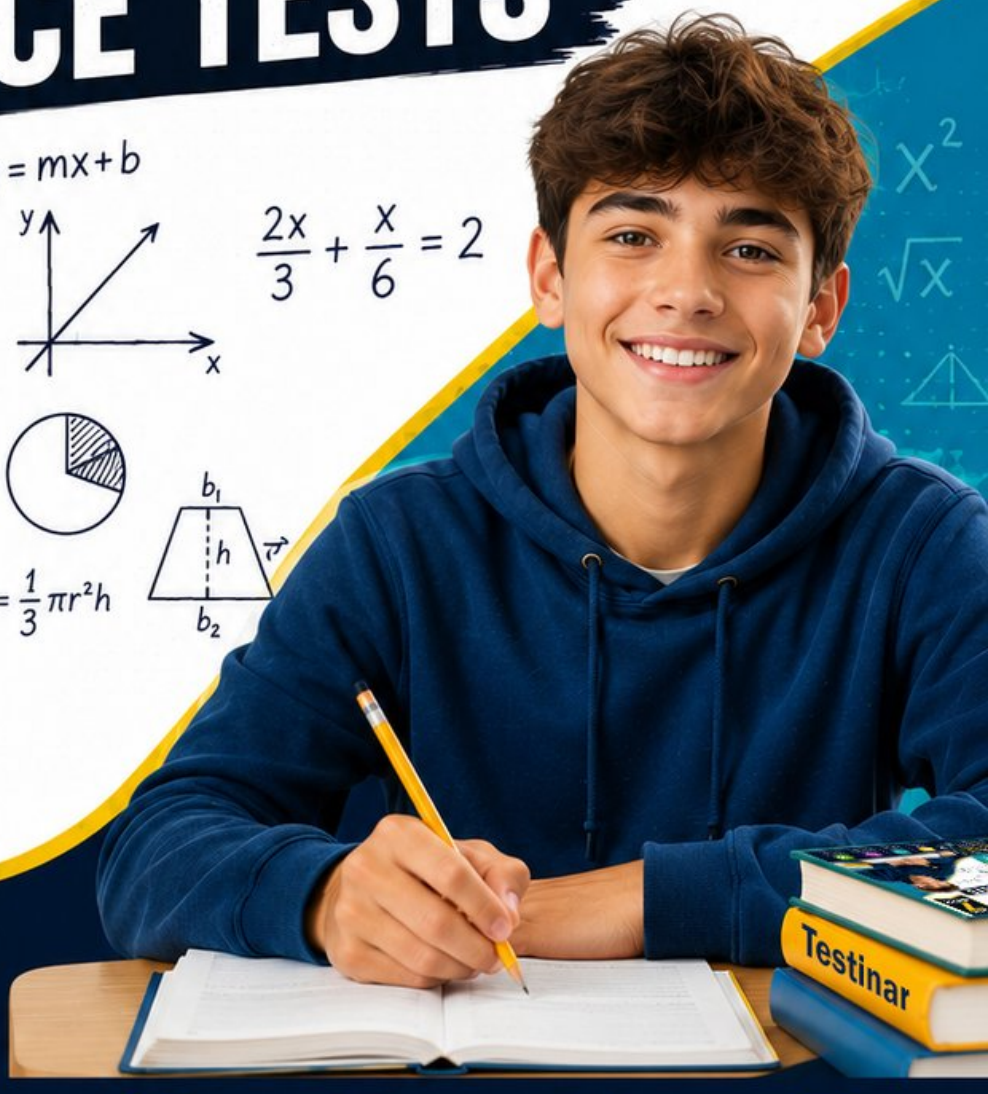
$y = mx + b$

$\frac{2x}{3} + \frac{x}{6} = 2$

$V = \frac{1}{3}\pi r^2 h$

4 PRINTED TESTS

2 ONLINE TESTS

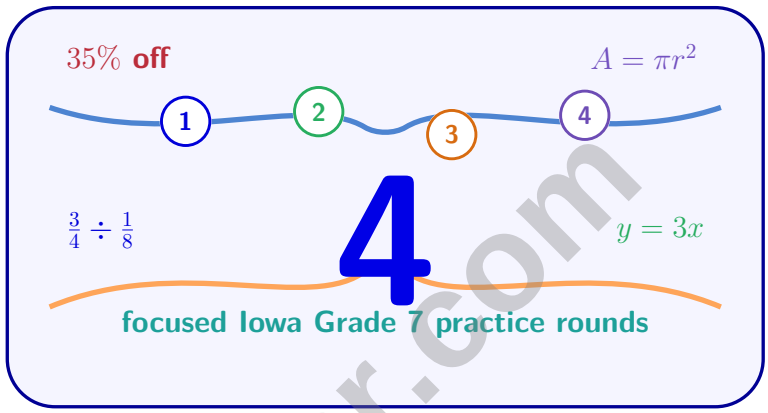


USE THESE TWO ADDITIONAL ONLINE PRACTICE TESTS FOR EXTRA REVIEW AFTER THE PRINTED TESTS IN THIS BOOK.

- Build Confidence
- Strengthen Math Skills
- Detailed Answers & Explanations
- Improve Test Performance

4 Iowa ISASP Grade 7 Math Practice Tests

Four Aligned Math Rounds with Keys and ISASP Review



Four complete 40-question Grade 7 ISASP practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari

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Welcome, Iowa Grade 7 Problem Solver!

Four focused rounds for sharper ISASP math thinking

This book gives you four full Grade 7 ISASP math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, 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.

How to Use This Book

A four-session plan for confident Grade 7 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.

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?

Four ISASP tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 3–4	Expressions, equations, inequalities, scale drawings, geometry, data, probability, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.

Table of Contents

1) A histogram shows the ages of 60 people in a fitness class: 10–20 (6), 20–30 (18), 30–40 (24), 40–50 (12). A gym owner wants to market the class to "young adults." If "young adults" means ages 20–40, what percentage of the class fits that description?

☐ A. 70%
☐ B. 42%
☐ C. 30%
☐ D. 90%

2) If a cylinder is scaled such that both the radius and height are doubled, by what factor does the volume increase?

☐ A. 2
☐ B. 4
☐ C. 8
☐ D. 16

3) A teacher recorded the number of minutes students spent on homework:

Class	Median	Range
Period 1	35 min	20 min
Period 2	35 min	60 min

Which class has more variable homework times?

☐ A. Period 1
☐ B. Period 2
☐ C. Both are equally variable
☐ D. The data does not support comparison

4) A spinner is divided into 8 equal sections. 2 sections are labeled "Win", 3 are labeled "Lose", and 3 are labeled "Try Again". What is the probability of spinning "Win"?

☐ A. $\frac{1}{8}$
☐ B. $\frac{1}{4}$
☐ C. $\frac{3}{8}$
☐ D. $\frac{1}{2}$

5) A color (Red or Blue) and a size (Small, Medium, Large) are chosen for a T-shirt. How many different T-shirt combinations are possible?

☐ A. 3
☐ B. 5
☐ C. 6
☐ D. 8

6) A bank charges a $5 monthly fee plus $0.10 per check written. If a customer writes 30 checks in a month, what is the total charged in fees?

7) Two histograms compare the quiz scores of morning and afternoon classes. The morning class shows bars centered around 85–90, while the afternoon class shows bars centered around 75–80. What does this suggest?

☐ A. Morning students scored higher on average
☐ B. Afternoon students are smarter
☐ C. Both classes performed equally well
☐ D. Quiz difficulty was higher for morning students

8) A diver descends 7.5 meters per minute. What is the total change in depth after 4 minutes?

9) A jacket costs j dollars. With 9% sales tax, the total is $1.09j$. What is the total cost if $j = 50$?

10) What is $P(A \text{ and } B)$ if event A has probability $\frac{1}{3}$ and event B has probability $\frac{1}{4}$, and the events are independent?

☐ A. $\frac{1}{7}$
☐ B. $\frac{2}{7}$
☐ C. $\frac{1}{12}$
☐ D. $\frac{7}{12}$

11) A student tossed a coin 100 times. The coin landed tails 58 times and heads 42 times. What is the difference between the experimental and theoretical probabilities of getting heads?

☐ A. 0.42
☐ B. 0.10
☐ C. 0.08
☐ D. 0.16

12) The stem-and-leaf plot below displays the number of points scored:

Stem	Leaves
4	3, 7
5	2, 5, 8
6	1, 4, 6, 9
7	0, 3, 8
8	2, 5

What is the lower quartile (Q1) of this dataset?

☐ A. 52
☐ B. 55
☐ C. 58
☐ D. 61

1) Which measure describes how spread out data is?

☐ A. Mean
☐ B. Median
☐ C. Range
☐ D. Mode

2) Use the distributive property to simplify $3(x + 5) - 2x$.

☐ A. $3x + 15 - 2x = x + 15$
☐ B. $x + 5$
☐ C. $3x + 5 - 2x$
☐ D. $3x + 15$

3) A freelance designer charges clients a 15% design fee on top of materials costs. If materials cost $200, what is the total cost to the client?

☐ A. $215
☐ B. $260
☐ C. $245
☐ D. $230

4) What is $-\frac{7}{8} \times 8$?

☐ A. -7
☐ B. -8
☐ C. 1
☐ D. 7

5) A train travels at a constant speed of 60 miles per hour. If the train travels for 3.5 hours, how many miles does it cover?

☐ A. 180 miles
☐ B. 200 miles
☐ C. 210 miles
☐ D. 240 miles

6) A rectangle is inscribed in a circle. One side is 8 cm and an adjacent side is 6 cm. Is there a unique rectangle that satisfies these conditions?

☐ A. Yes, exactly one
☐ B. No, infinitely many
☐ C. No, but there are exactly two
☐ D. No rectangle fits these conditions

7) A recipe calls for 2 cups of flour for every 1 cup of sugar. If the recipe uses s cups of sugar, which expression shows the amount of flour needed?

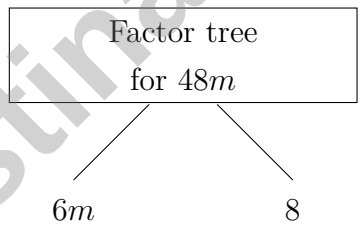
☐ A. $s + 2$
☐ B. $2s$
☐ C. $\frac{s}{2}$
☐ D. $2 + s$

8) A stock investment grows from \$5,000 to \$5,500 in one year. What is the percentage growth?

9) What is the coefficient of x in the simplified form of $9x - 4x + 2y$?

☐ A. 9
☐ B. 5
☐ C. 4
☐ D. 13

10)



If a factor tree shows that $48m = 6m \times 8$, then what is the GCF of $48m$ and 24?

☐ A. 6
☐ B. 8
☐ C. 24
☐ D. 12

1) A plane descends 2000 feet from its cruising altitude of 35000 feet. What is its new altitude? (Model as −2000 for descent.)

☐ A. 37000 feet
☐ B. 70000 feet
☐ C. −33000 feet
☐ D. 33000 feet

2) Two box plots compare the number of online orders per day for two e-commerce sites. Site X: Q1 = 50, Median = 75, Q3 = 100. Site Y: Q1 = 40, Median = 75, Q3 = 110. Which site has more consistent order volume?

☐ A. Site X (lower IQR: 50 vs. 70)
☐ B. Site Y (higher Q3 means more orders)
☐ C. Both sites are identical
☐ D. Site Y (lower Q1 means better baseline)

3) A platform is designed as two congruent trapezoids joined at their parallel sides. Each trapezoid has parallel sides of 6 m and 4 m with height 3 m. What is the total platform area?

☐ A. 15 m^2
☐ B. 30 m^2
☐ C. 45 m^2
☐ D. 60 m^2

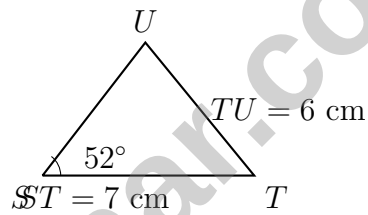
4) Convert $\frac{7}{8}$ to a decimal by performing long division.

5) A bank account starts with a balance of $250.75. The account loses $12.50 per month for 5 months. What is the final balance?

6) A rectangular prism has a square base with side length 7 cm and a height of 11 cm. What is the volume?

☐ A. 49 cm^3
☐ B. 77 cm^3
☐ C. 539 cm^3
☐ D. 1,078 cm^3

7)



Triangle STU has side $ST = 7$ cm, side $TU = 6$ cm, and the angle at T is 52°. This triangle is uniquely determined by the:

☐ A. SSS condition
☐ B. SAS condition
☐ C. ASA condition
☐ D. SSA condition

8) A circle has a radius of 5 inches. What is its diameter?

☐ A. 2.5 inches
☐ B. 5 inches
☐ C. 10 inches
☐ D. 15 inches

Iowa ISASP Grade 7 Practice Test Answer Keys

How to use this section with a Grade 7 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.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice A is correct.** 7.SP.1-7.SP.4 Ages 20–40 include: 18 + 24 = 42 people out of 60. Percentage = $\frac{42}{60} = 0.70 = 70\%$.
2) **Choice C is correct.** 7.G.4-7.G.6 Original: $V = \pi r^2 h$. New: $V' = \pi(2r)^2(2h) = 8\pi r^2 h = 8V$.
3) **Choice B is correct.** 7.SP.1-7.SP.4 Period 2 has a range of 60 minutes, much larger than Period 1's range of 20 minutes, indicating more variability in homework times.
4) **Choice B is correct.** 7.SP.5-7.SP.8 "Win" sections: 2 out of 8. $P(\text{Win}) = \frac{2}{8} = \frac{1}{4}$.
5) **Choice C is correct.** 7.SP.5-7.SP.8 Colors: 2; sizes: 3. By the counting principle: $2 \times 3 = 6$ combinations.
6) **The correct answer is** \$8 **.** 7.RP.3 Total fees $= 5 + (0.10 \times 30) = 5 + 3 = \$8$.
7) **Choice A is correct.** 7.SP.3 The histogram center (where bars cluster) indicates the typical score range. Morning (85–90) is higher than afternoon (75–80), so morning students performed better on average.
8) **The correct answer is** -30 **.** 7.NS.2 Change per minute is -7.5 meters. After 4 minutes: $(-7.5) \times 4 = -30$ meters.
9) **The correct answer is** \$54.50 **.** 7.EE.1-7.EE.2 Compute $1.09(50) = 54.50$.
10) **Choice C is correct.** 7.SP.5-7.SP.8 $P(A \text{ and } B) = P(A) \cdot P(B) = \frac{1}{3} \cdot \frac{1}{4} = \frac{1}{12}$.
11) **Choice C is correct.** 7.SP.6 Experimental probability of heads: $\frac{42}{100} = 0.42$. Theoretical: 0.5. Difference: $|0.42 - 0.5| = 0.08$.
12) **Choice B is correct.** 7.SP.1-7.SP.4 There are 14 values. Lower half: $43, 47, 52, 55, 58, 61, 64$ (7 values). Median of lower half (Q1) is the 4th value: 55.
13) **Choice C is correct.** 7.G.4-7.G.6 Rectangle: $8 \times 4 = 32$ sq units. Triangle: $\frac{1}{2} \times 8 \times 2 = 8$ sq units. Total: $32 + 8 = 40$ sq units.
14) **Choice D is correct.** 7.G.4-7.G.6 $V = s^3 = 9^3 = 729$ m^3.
15) **Choice B is correct.** 7.G.1-7.G.5 We know two angles (40° and 65°, so the third is 75°) and one side ($HI = 8$ cm) between two known angles. This is AAS (Angle–Angle–Side), which uniquely determines the triangle.
16) **Choice C is correct.** 7.G.4-7.G.6 Concentric circles share the same center. M is at the center of both circles.
17) **Choice B is correct.** 7.SP.5-7.SP.8 $60\% = \frac{60}{100} = 0.6$.
18) **The correct answer is B,C.** 7.RP.1-7.RP.3 Option B: cost = 1.50 × pounds (proportional, of form $y = kx$). Option C: distance = speed × time (proportional). Option A is a general trend but not a strict proportional relationship. Option D: height does not scale proportionally with age (growth rates vary).
19) **Choice D is correct.** 7.SP.1-7.SP.4 The dot plot shows 6 defects out of 20 items. Proportion: $\frac{6}{20} = \frac{x}{200} \Rightarrow \frac{3}{10} = \frac{x}{200} \Rightarrow x = 60$.
20) **Choice D is correct.** 7.NS.1-7.NS.3 Step 1 error: When subtracting a negative, flip the sign of the subtrahend (the -5 becomes $+5$), so the rule is $-3 - (-5) = -3 + 5$. Step 2 error follows from Step 1. The correct answer is 2. This tests the most common student error.
21) **Choice C is correct.** 7.RP.1-7.RP.3 Divide actual length by scale: 26 m ÷ 87 ≈ 0.299 m ≈ 30 cm. The closest option is 3 cm (or 0.03 m, noting that 30 cm would overestimate).
22) **Choice D is correct.** 7.RP.3 20% of 250 is $0.20 \times 250 = 50$ new employees.
23) **Choice C is correct.** 7.SP.1-7.SP.4 37.5% of $800 = 0.375 \times 800 = 300$ students.
24) **Choice D is correct.** 7.RP.1-7.RP.3 The ratio salt:water is $3 : 12 = 1 : 4$, so $s = \frac{1}{4}w$.
25) **Choice D is correct.** 7.RP.3 Set up the proportion $\frac{42}{50} = \frac{p}{100}$. Cross-multiply: $p = \frac{42 \times 100}{50} = 84\%$.
26) **The correct answer is** 25 **.** 7.G.1-7.G.5 By Pythagorean Theorem: $c = \sqrt{7^2 + 24^2} = \sqrt{49 + 576} = \sqrt{625} = 25$ cm. This is the 7-24-25 Pythagorean triple.
27) **Choice D is correct.** 7.RP.1-7.RP.3 If $\frac{3}{4}$ patio uses $\frac{1}{2}$ ton, then 1 full patio uses $\frac{1/2}{3/4} = \frac{1}{2} \times \frac{4}{3} = \frac{2}{3}$ ton.
28) **Choice D is correct.** 7.RP.1-7.RP.3 Ratios: $12/3 = 4$, $24/6 = 4$, $36/9 = 4$. Constant ratio $k = 4$, so proportional.
29) **Choice D is correct.** 7.RP.1-7.RP.3 Unit rate = \$90 ÷ 6 = \$15 per week.

Author's Note

Your Future Math Self

Hi, Future Algebra Thinker!

◇ Grade 7 practice prepares you for the next math steps. Expressions, equations, proportional relationships, and graphs are all part of that bridge. This carefully paced book gave you four steady Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

⋆ **Remember this:** Every time you solved for an unknown or explained a relationship, you were building skills that future math will use again. ⋆

Bridge Skills

- **Use Variables:** Let letters stand for unknown values.
- **Balance Equations:** Keep both sides fair.
- **Read Graphs:** Connect points to meaning.
- **Compare Rates:** Look for constant relationships.

Grade 7 test-day tip: When you see a variable, say what it represents. That keeps algebra connected to the problem.

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

Jay Daie

Your Algebra Bridge Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 4 full-length Math practice tests and 2 online tests to help Grade 7 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:

- 4 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.

Strengthen Math Skills
Develop key math concepts and problem solving abilities.

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

Test Confidence
Familiarize with test formats and improve accuracy and speed.

Boost Performance
Apply your knowledge and achieve your best score!

TOPICS COVERED

- Ratios & Proportions
- The Number System
- Expressions & Equations
- Geometry
- Percents & Decimals
- Statistics & Probability
- Data Analysis
- Measurement & Conversions
- Algebraic Thinking
- 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!

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PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY