

9 Illinois IAR

GRADE 7

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

Program



9 PRINTED
TESTS



2 ONLINE
TESTS



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



BUILT FOR ACAP
Standards-Aligned



**STRENGTHEN
SKILLS**



**SHARPEN
THINKING**



BE TEST-READY
Improve Performance

9 Illinois IAR Grade 7 Math Practice Tests

Standards-Aligned Illinois Practice for Proportional Reasoning, Expressions, Geometry, Statistics, and Probability



Nine complete 40-question Grade 7 IAR 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, Illinois Grade 7 Problem Solver!

Nine focused rounds for sharper IAR math thinking

This book gives you nine full Grade 7 IAR 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 Illinois 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 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.

Illinois 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 IAR tests, 360 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 4–6	Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving.
Tests 7–9	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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.



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- 1) Maya runs at 8 miles per hour. After running for t hours, she has covered d miles. Which equation is correct?

☐ A. $d = 8 + t$

☐ B. $d = \frac{8}{t}$

☐ C. $t = 8d$

☐ D. $d = 8t$

- 2) A server at a restaurant receives a total of \$18 in tips on a \$120 bill. What percentage tip did the customer leave?

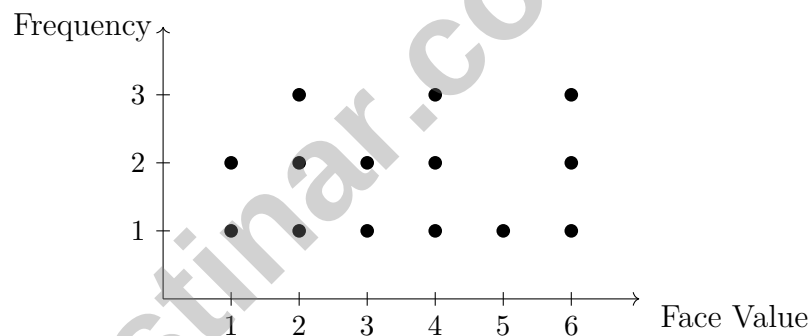
☐ A. 12%

☐ B. 20%

☐ C. 18%

☐ D. 15%

- 3) An experiment involved rolling a number cube and recording results in a dot plot. The dot plot showed:



What is the experimental probability of rolling a 4?

☐ A. $\frac{3}{14}$

☐ B. $\frac{1}{4}$

☐ C. $\frac{3}{16}$

☐ D. $\frac{1}{6}$



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- 4) The stem-and-leaf plot displays class test scores:

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

What is the median score?

- ☐ A. 85 ☐ C. 83
☐ B. 84 ☐ D. 82
- 5) A carpenter charges \$180 for 6 hours of work. What is the hourly rate?

- 6) 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 ☐ C. 45 m^2
☐ B. 30 m^2 ☐ D. 60 m^2
- 7) A rectangular prism has length 12 cm, width 5 cm, and height 3 cm. Which expression correctly represents the volume?

- ☐ A. $(12 + 5) \times 3$ ☐ C. $2(12 + 5 + 3)$
☐ B. $12 \times 5 \times 3$ ☐ D. $12 + 5 + 3$



- 8) A circle has a diameter of 14 cm. What is its radius?
- ☐ A. 7 cm ☐ C. 21 cm
☐ B. 14 cm ☐ D. 28 cm
- 9) A textbook page is 8 inches by 10 inches. For a digital version, the page is scaled by a factor of 0.75. What are the digital dimensions?
- ☐ A. 12 inches $\times$ 15 inches ☐ C. 5.33 inches $\times$ 6.67 inches
☐ B. 8.75 inches $\times$ 10.75 inches ☐ D. 6 inches $\times$ 7.5 inches
- 10) What percent of 60 is 48?
- ☐ A. 60% ☐ C. 80%
☐ B. 75% ☐ D. 90%
- 11) Compute $-28 + (-15)$.
- ☐ A. -43 ☐ C. 13
☐ B. -13 ☐ D. 43
- 12) An item costs \$72 after a 20% discount. What was the original price?
- ☐ A. \$360 ☐ C. \$57.60
☐ B. \$86.40 ☐ D. \$90
- 13) A contractor charges \$900 to paint $\frac{3}{4}$ of a house. What is the cost per full house?
- ☐ A. \$675 ☐ C. \$600
☐ B. \$2700 ☐ D. \$1200



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1) Which group shows ALL the like terms in the expression $5a + 3b + 7a + 2c + 8b$?

☐ A. $3b$ and $8b$

☐ C. $5a$ and $7a$

☐ B. $2c$ and $5a$

☐ D. $5a$, $7a$, $3b$, and $8b$

2) Three workers complete $\frac{2}{3}$ of a project equally in 1 day. How much does each worker complete?

☐ A. $\frac{1}{9}$ of the project

☐ C. $\frac{2}{3}$ of the project

☐ B. $\frac{3}{2}$ of the project

☐ D. $\frac{2}{9}$ of the project

3) A table shows the relationship between ingredients. Which entry is an ERROR (does not follow the proportional pattern)?

Cups Sugar	1	2	3	4
Cups Flour	3	6	9	13

☐ A. Sugar 1, Flour 3

☐ C. Sugar 3, Flour 9

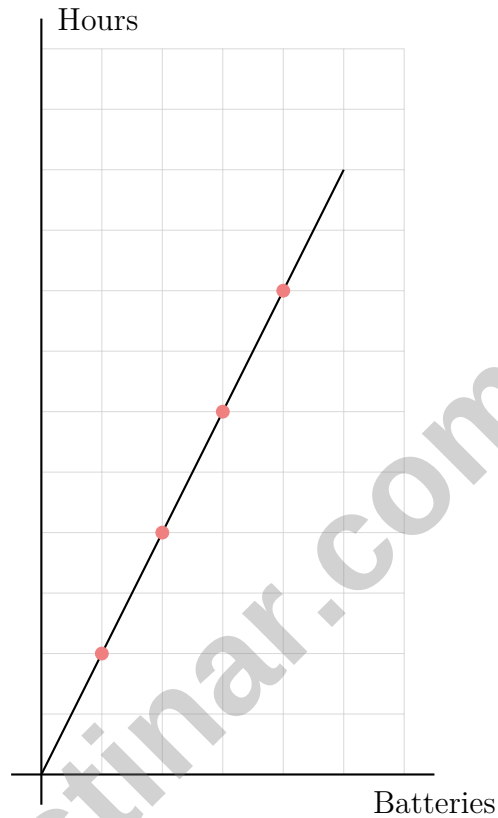
☐ B. Sugar 2, Flour 6

☐ D. Sugar 4, Flour 13



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- 4) A graph shows the proportional relationship between video game controller batteries (units) and playtime (hours).



What is the constant of proportionality (hours per battery)?

- ☐ A. 1 ☐ C. 0.5
☐ B. 3 ☐ D. 2



1) Convert 0.48 to a fraction in simplest form.

- ☐ A. $\frac{48}{100}$
☐ B. $\frac{24}{50}$

- ☐ C. $\frac{12}{25}$
☐ D. $\frac{6}{13}$

2) What is the solution to $\frac{x-3}{2} = 5$?

- ☐ A. $x = 7$
☐ B. $x = 10$

- ☐ C. $x = 13$
☐ D. $x = 16$

3) A rectangular living room has actual dimensions 6 m by 8 m. One scale drawing shows it as 3 cm by 4 cm. What is the scale of this drawing?

- ☐ A. 1 cm : 2 m
☐ B. 1 cm : 3 m

- ☐ C. 1 cm : 4 m
☐ D. 3 cm : 8 m

4) A right circular cone with base radius 4 cm and height 12 cm is sliced by a plane that is 8 cm from the apex and parallel to the base. What is the radius of the circular cross-section?

- ☐ A. $\frac{8}{3}$ cm
☐ B. $\frac{16}{3}$ cm

- ☐ C. $\frac{8}{12}$ cm
☐ D. 3 cm

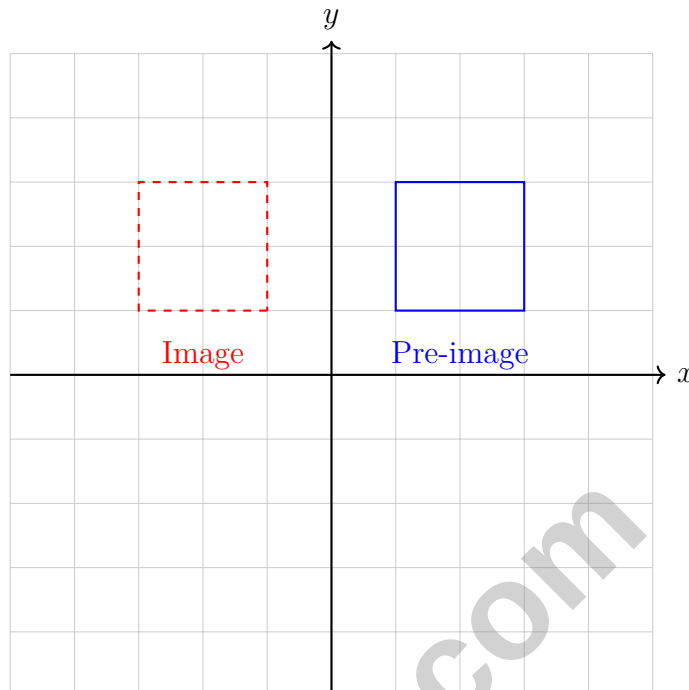
5) Two angles are supplementary. If the first angle is twice the second angle, what is the measure of the smaller angle?

- ☐ A. 60°
☐ B. 90°

- ☐ C. 30°
☐ D. 120°



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6)

Which transformation maps the blue figure (pre-image) to the red figure (image)?

- | | |
|---|---|
| ☐ A. Translation by $(-2, 0)$ | ☐ C. Rotation of 90° counterclockwise |
| ☐ B. Reflection over the y -axis | ☐ D. Reflection over the x -axis |

7) A designer creates a floor plan at a scale of $1 \text{ cm} = 1.5 \text{ m}$. If a room is drawn as 4 cm by 5 cm on the plan, what is the actual area of the room?

- | | |
|--|--|
| ☐ A. 20 m^2 | ☐ C. 45 m^2 |
| ☐ B. 30 m^2 | ☐ D. 90 m^2 |



Illinois IAR 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 Illinois IAR practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (7.RP.1-7.RP.3) Distance equals speed times time. With speed $k = 8$ mph, the equation is $d = 8t$.
- 2) **Choice D is correct.** (7.RP.3) Tip percentage = $\frac{18}{120} = 0.15 = 15\%$.
- 3) **Choice A is correct.** (7.SP.6) Counting dots: Face 1 has 2, Face 2 has 3, Face 3 has 2, Face 4 has 3, Face 5 has 1, Face 6 has 3. Total: $2 + 3 + 2 + 3 + 1 + 3 = 14$ rolls. Face 4 appeared 3 times. Experimental probability: $\frac{3}{14}$.
- 4) **Choice A is correct.** (7.SP.1-7.SP.4) There are 13 values (odd). Ordered: 72, 75, 78, 78, 81, 83, 85, 86, 89, 90, 92, 94, 97. The 7th value is 85.
- 5) **The correct answer is 30.** (7.RP.1-7.RP.3) Hourly rate = $180 \div 6 = 30$ dollars per hour.
- 6) **Choice B is correct.** (7.G.4-7.G.6) Each trapezoid: $\frac{1}{2}(6 + 4) \times 3 = 15 \text{ m}^2$. Two trapezoids: $15 + 15 = 30 \text{ m}^2$.
- 7) **Choice B is correct.** (7.G.4-7.G.6) Volume of a rectangular prism is length $\times$ width $\times$ height, so $12 \times 5 \times 3 = 180 \text{ cm}^3$.
- 8) **Choice A is correct.** (7.G.4-7.G.6) The radius is half the diameter: $14 \div 2 = 7 \text{ cm}$.
- 9) **Choice D is correct.** (7.RP.1-7.RP.3) Multiply each dimension by 0.75: $8 \times 0.75 = 6$ inches; $10 \times 0.75 = 7.5$ inches.
- 10) **Choice C is correct.** (7.RP.3) $\frac{48}{60} = \frac{4}{5} = 0.80 = 80\%$.
- 11) **Choice A is correct.** (7.NS.1b) Both numbers are negative; add absolute values: $|-28| + |-15| = 28 + 15 = 43$, and keep the negative sign: -43 .
- 12) **Choice D is correct.** (7.RP.3) Sale price = original $\times 0.80$. So $72 = \text{original} \times 0.80$, giving original = $72 \div 0.80 = \$90$.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{900}{3/4} = 900 \times \frac{4}{3} = 1200$ dollars per house.
- 14) **Choice D is correct.** (7.RP.1-7.RP.3) Each ratio: $25/10 = 2.5$, $50/20 = 2.5$, $75/30 = 2.5$. The constant ratio is \$2.50 per ticket.
- 15) **Choice D is correct.** (7.RP.3) Total = $\$500 + (6\% \times \$500) = \$500 + \$30 = \$530$.
- 16) **The correct answer is 1600.** (7.SP.1-7.SP.4) Set up the proportion: $\frac{80}{250} = \frac{x}{5000}$. Solve: $x = \frac{80 \times 5000}{250} = 1600$.
- 17) **Choice B is correct.** (7.NS.1-7.NS.3) Time = distance $\div$ rate. The diver descends 18 meters at 1.5 m/s: $18 \div 1.5 = 12$ seconds.
- 18) **Choice C is correct.** (7.NS.1-7.NS.3) With the same coefficient, the number with the most negative exponent is the smallest. -6 is most negative.
- 19) **The correct answer is A,B.** (7.G.1-7.G.5) A cannot form a triangle because $5 + 3 = 8 \not> 9$. B cannot form a triangle because $4 + 6 = 10$, not greater than 10. C and D are valid because each pair of side lengths sums to more than the third side.
- 20) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute the negative: $8u - 6 - 5u - 3 = (8u - 5u) + (-6 - 3) = 3u - 9$.
- 21) **The correct answer is 0.** (7.G.1-7.G.5) Compute $81 + 144 - 225 = 0$. This confirms the side lengths satisfy the Pythagorean relationship, forming a right triangle.
- 22) **Choice A is correct.** (7.EE.4a) Distribute: $3x + 12 = 27$. Subtract 12: $3x = 15$. Divide by 3: $x = 5$. (Distractor D: forgetting to distribute gives $x + 4 = 27 \Rightarrow x = 23$.)
- 23) **Choice B is correct.** (7.EE.3-7.EE.4) Divide by 3: $2x + 1 = 9$. Subtract 1: $2x = 8$. Divide by 2: $x = 4$.
- 24) **Choice B is correct.** (7.NS.1-7.NS.3) Convert to common denominator 4: $3\frac{3}{4} - 1\frac{2}{4} = 2\frac{1}{4}$.
- 25) **Choice C is correct.** (7.G.4-7.G.6) Area of full circle: $A = 3.14 \times 8^2 = 3.14 \times 64 = 200.96 \text{ cm}^2$. Quarter: $\frac{200.96}{4} = 50.24 \text{ cm}^2$.
- 26) **Choice C is correct.** (7.SP.1-7.SP.4) Percentage = $\frac{90}{360} \times 100\% = \frac{1}{4} \times 100\% = 25\%$.
- 27) **Choice A is correct.** (7.SP.5-7.SP.8) Each sector is $\frac{120}{360} = \frac{1}{3}$ of the whole circle, so $P(\text{Blue}) = \frac{1}{3}$. Distractors: B is $\frac{1}{4}$ (too small), C is $\frac{2}{3}$ (counts two sectors), D is $\frac{2}{5}$ (incorrect ratio).
- 28) **Choice A is correct.** (7.NS.2) $\frac{3}{4} \times 8 = \frac{3 \times 8}{4} = \frac{24}{4} = 6$.
- 29) **Choice A is correct.** (7.NS.1-7.NS.3) $70 - 64 = 6$ and $81 - 70 = 11$. Since $6 < 11$, the perfect square 64 is closest to 70.
- 30) **Choice D is correct.** (7.RP.3) Interest = $0.02 \times 500 = \$10$ in one year.



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Hi, Confident Learner!

◇ This high-stamina book gave you nine substantial Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 7 math can feel big because it brings together rational numbers, expressions, equations, geometry, probability, and data. ◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 7 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **9** 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:

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2 Online Practice Tests

 Detailed Answer Explanations



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Better Problem Solving

Develop logical thinking and effective solution strategies.



Deeper Understanding

Reinforce key concepts with clear explanations and meaningful practice.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Achieve Success

Build confidence and perform your best on test day.

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- ✓ The Number System
- ✓ Expressions & Equations
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- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
- ✓ And More!



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