10 Illinois IAR PRACTICE TESTS

GRADE 7 MATH

Standards Aligned Problem Solving For Comprehensive Assessment Programs

10 PRINTED TESTS
Realistic practice to build confidence and mastery

2 ONLINE TESTS
Extra practice for continued success

DETAILED ANSWER EXPLANATIONS
Learn with step-by-step solutions

FOCUSED & EFFECTIVE
Target key math skills with purposeful practice

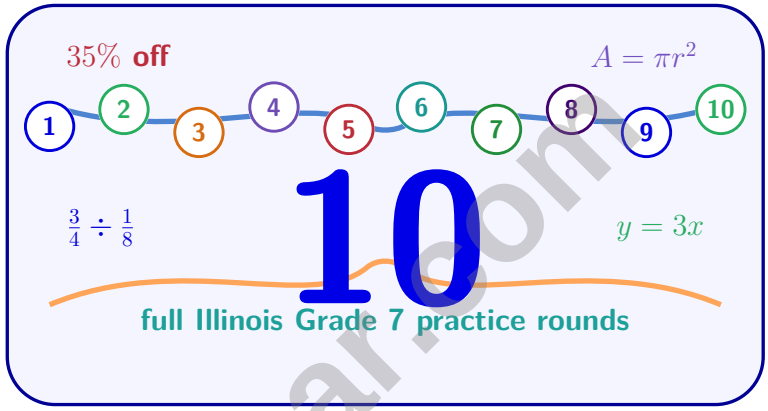
10 PRINTED TESTS +2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 Illinois IAR Grade 7 Math Practice Tests

Illinois Grade 7 IAR Practice for city-grid clarity across proportional graphs, percent change, algebra, geometry, and statistics



Ten 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.

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Welcome, Illinois Grade 7 Problem Solver!

Ten focused rounds for sharper Illinois IAR math thinking

This book gives you ten 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.

How to Use This Book

A ten-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?

Ten Illinois IAR tests, 400 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.
Test 10	A final Illinois round to show growth across the whole book.
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 square garden has an area of 100 square meters. What is the length of one side of the garden?

☐ A. 8 meters
☐ B. 9 meters
☐ C. 10 meters
☐ D. 11 meters

2) A map scale is given as 2 in : 5 miles. If the actual distance between two points is 20 miles, what is the distance on the map?

☐ A. 4 in
☐ B. 6 in
☐ C. 8 in
☐ D. 10 in

3) Two basketball teams' free-throw percentages over 10 games are shown below.

Team	Mean	MAD
Tigers	75%	8%
Sharks	72%	4%

Based on this data, which statement is most accurate?

☐ A. The Sharks are more reliable free-throw shooters
☐ B. The Tigers never miss a free throw
☐ C. The Sharks score more points overall
☐ D. Both teams have the same consistency

4) A coin is tossed and a six-sided die is rolled. What is the probability of getting tails on the coin?

☐ A. $\frac{1}{6}$
☐ B. $\frac{1}{2}$
☐ C. $\frac{1}{12}$
☐ D. $\frac{2}{3}$

5) A rectangular prism has a length of 9 inches, a width of 4 inches, and a height of 6 inches. What is the volume in cubic inches?

6) An ice cream shop offers 4 cone types (Sugar, Cake, Waffle, Chocolate) and 10 flavors. When ordering with cone and flavor, how many total combinations exist?

☐ A. 14
☐ B. 20
☐ C. 35
☐ D. 40

7) A cylindrical water tank has a radius of 2.5 meters and a height of 8 meters. Find the volume of the tank in cubic meters. Use $\pi \approx 3.14$.

8) Consider the sample space for flipping a coin and rolling a die. How many total possible outcomes are there?

☐ A. 6
☐ B. 8
☐ C. 12
☐ D. 24

9) The stem-and-leaf plot shows:

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

How many data values fall between 30 and 40 (inclusive)?

☐ A. 2
☐ B. 3
☐ C. 4
☐ D. 5

10) A die was rolled and outcomes were tallied. The results showed odd numbers (1, 3, 5) appeared a combined 87 times out of 180 rolls. What is the experimental probability of rolling an odd number?

☐ A. 0.48
☐ B. 0.50
☐ C. 0.52
☐ D. 0.87

11) **Item Cost Estimates**

Item	Estimated Cost	Actual Cost
Shirt	$22	$20

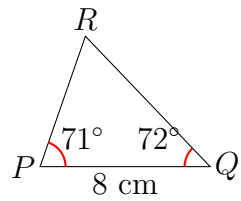
What is the percent error for the shirt cost estimate?

☐ A. 91%
☐ B. 9.1%
☐ C. 11%
☐ D. 10%

12) A student expanded $3(2x + 5)$ and got $6x + 5$. What error did the student make?

☐ A. Forgot to distribute to the constant term.
☐ B. Distributed incorrectly to the variable term.
☐ C. Used addition instead of multiplication.
☐ D. The answer is correct.

1)



A triangle has angles of 71° and 72°, and the side between them is 8 cm. How many non-congruent triangles can be drawn?

☐ A. 1
☐ B. 2
☐ C. 3
☐ D. Infinitely many

2) A scatter plot shows the relationship between the price of a bicycle (x-axis, in dollars) and the number sold per month (y-axis). The points show a downward trend. What does this suggest?

☐ A. Expensive bikes never sell
☐ B. Lower-priced bikes tend to sell more
☐ C. Price and sales are unrelated
☐ D. The store should lower all prices

3) A dataset contains 24 values displayed in a stem-and-leaf plot. If the data is divided into lower and upper halves to find the interquartile range, how many values are in the upper half (excluding the median)?

☐ A. 10
☐ B. 11
☐ C. 12
☐ D. 13

4) A rectangular prism has a volume of 720 in^3. The base is a square with side length 12 inches. What is the height?

☐ A. 5 in
☐ B. 6 in
☐ C. 12 in
☐ D. 60 in

5) A spinner has 8 equal sections: 3 red, 2 blue, and 3 green. What is the probability of spinning a blue section?

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

6) Expand: $-\frac{1}{2}(6x - 4)$

☐ A. $-3x + 2$
☐ B. $-3x - 2$
☐ C. $3x - 2$
☐ D. $-3x - 4$

7) Simplify: $7a + 4b - 2a + 3b - b$

☐ A. $5a + 6b$
☐ B. $5a + 5b$
☐ C. $9a + 6b$
☐ D. $5a + 7b$

8) Factor: $6xy + 9x$

☐ A. $3x(2y + 3)$
☐ B. $6x(y + 1.5)$
☐ C. $9(2xy + 1)$
☐ D. $x(6y + 9)$

9) A rectangular prism has surface area 250 cm^2. If length = 10 cm and width = 5 cm, what is the height?

☐ A. 5 cm
☐ B. 10 cm
☐ C. 7.5 cm
☐ D. 12.5 cm

10) A survey of 600 apartment residents shows that 14% own bicycles. How many residents own bicycles?

☐ A. 14
☐ B. 84
☐ C. 140
☐ D. 516

1) A dot plot shows quiz scores: 70 (one student), 75 (two students), 80 (four students), 85 (two students), 90 (one student). Which statement is correct?

☐ A. The median is 70
☐ B. The median is 80
☐ C. The median is 85
☐ D. The median is 90

2) A hospital tracks patient visit types. If emergency visits occupy 216° of a circle graph, what percent do they represent?

☐ A. 36%
☐ B. 54%
☐ C. 60%
☐ D. 72%

3) A bag contains 4 red marbles, 6 blue marbles, and 5 yellow marbles. If a marble is drawn at random, find $P(\text{red or yellow})$ as a decimal.

4) Combine like terms: $(7a + 9) - (3a - 4)$

☐ A. $4a + 13$
☐ B. $4a + 5$
☐ C. $10a + 5$
☐ D. $4a - 13$

5) Simplify $\frac{15m^8}{5m^3}$:

☐ A. $3m^5$
☐ B. $3m^{11}$
☐ C. $10m^5$
☐ D. $3m^8$

6) A tutoring center charges an enrollment fee of \$30 and \$45 per session. Write an equation that models the total cost T for s sessions.

☐ A. $T = (30 + 45)s$
☐ B. $T = 30s + 45$
☐ C. $T = 30 + 45s$
☐ D. $T = 45 + 30s$

7) Solve: $2(x + 4) = 16$

☐ A. $x = 4$
☐ B. $x = 6$
☐ C. $x = 8$
☐ D. $x = 10$

8) Solve for x: $2(x - 5) = 14$

☐ A. $x = 7$
☐ B. $x = 12$
☐ C. $x = 9$
☐ D. $x = 5$

9) Marcus earns \$12 per hour. After working 8 hours, he spent \$15 on lunch. How much money does he have left?

☐ A. \$81
☐ B. \$96
☐ C. \$111
☐ D. \$127

10) A toy car is a scale model of a real car with a scale of 1 : 64. If the toy car is 8 cm long, what is the length of the real car in meters?

☐ A. 0.512 m
☐ B. 2.56 m
☐ C. 5.12 m
☐ D. 51.2 m

11) A floor plan shows a rectangular office that is 2.5 inches by 3.5 inches at a scale of 1 in : 10 ft. Which pair of measurements are the actual office dimensions?

☐ A. 25 ft by 35 ft
☐ B. 2.5 ft by 3.5 ft
☐ C. 12.5 ft by 17.5 ft
☐ D. 20 ft by 28 ft

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.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice C is correct.** 7.NS.1-7.NS.3 The area of a square is s^2. If the area is 100, then $s^2 = 100$, so $s = \sqrt{100} = 10$ meters.
2) **Choice C is correct.** 7.G.1-7.G.5 Set up: $\frac{2 \text{ in}}{5 \text{ miles}} = \frac{x}{20 \text{ miles}}$. Cross-multiply: $5x = 40$, so $x = 8$ in.
3) **Choice A is correct.** 7.SP.1-7.SP.4 Although Tigers have a higher mean (75% vs. 72%), the Sharks have much lower MAD (4% vs. 8%), indicating more consistent free-throw shooting.
4) **Choice B is correct.** 7.SP.5-7.SP.8 The coin flip is independent of the die roll. $P(\text{tails}) = \frac{1}{2}$.
5) **The correct answer is 216 .** 7.G.4-7.G.6 $V = l \times w \times h = 9 \times 4 \times 6 = 216$ in^3.
6) **Choice D is correct.** 7.SP.5-7.SP.8 Cone types: 4; flavors: 10. Total: $4 \times 10 = 40$ combinations.
7) **The correct answer is 157 .** 7.G.4-7.G.6 $V = \pi r^2 h \approx 3.14 \times (2.5)^2 \times 8 = 3.14 \times 6.25 \times 8 = 157$ m^3.
8) **Choice C is correct.** 7.SP.5-7.SP.8 Coin outcomes: 2 (H, T); Die outcomes: 6. Total: $2 \times 6 = 12$.
9) **Choice C is correct.** 7.SP.1-7.SP.4 Values in the range: $31, 34, 34, 37$ (all from stem 3) $= 4$ values.
10) **Choice A is correct.** 7.SP.6 Experimental probability $= \frac{87}{180} \approx 0.483$, which rounds to approximately 0.48.
11) **Choice D is correct.** 7.RP.3 Percent error $= \frac{|22-20|}{20} \times 100\% = \frac{2}{20} \times 100\% = 10\%$.
12) **Choice A is correct.** 7.EE.1-7.EE.2 The student skipped distributing 3 to the 5, a common error.
13) **Choice C is correct.** 7.RP.3 $A = P + I \Rightarrow 2480 = P + P(0.06)(4) \Rightarrow 2480 = P + 0.24P = 1.24P \Rightarrow P = \$2000$.
14) **Choice B is correct.** 7.NS.1-7.NS.3 Moving right (positive direction) from -2 is the same as subtracting a negative. $-2 - (-6) = -2 + 6 = 4$.
15) **Choice D is correct.** 7.RP.1-7.RP.3 Multiply map distance by scale factor: $2.25 \times 30 = 67.5$ miles.
16) **Choice C is correct.** 7.RP.3 $\frac{40}{50} = \frac{4}{5} = 0.80 = 80\%$.
17) **The correct answer is 120 .** 7.SP.1-7.SP.4 The sample size is the number of individuals surveyed. In this case, 120 adults were randomly selected and surveyed, so the sample size is 120.
18) **Choice D is correct.** 7.NS.1b Start at -8 on a number line and move 5 units right: $-8 + 5 = -3$.
19) **The correct answer is A,C.** 7.G.4-7.G.6 Large square: $20 \times 20 = 400$ m^2 (A). Small square: $5 \times 5 = 25$ m^2. Remaining: $400 - 25 = 375$ m^2 (C). The cutout is $\frac{25}{400} = \frac{1}{16}$ of the original area, not $\frac{1}{20}$.
20) **Choice A is correct.** 7.EE.1 Combine p terms and q terms: $(5 + 3)p + (2 - 1 + 4)q = 8p + 5q$.
21) **Choice A is correct.** 7.EE.1-7.EE.2 The GCF of $5x$ and 25 is 5. Divide both terms by 5 to get $5(x + 5)$.
22) **Choice C is correct.** 7.SP.1-7.SP.4 Angle $\div 360° \times 100 = 72° \div 360° \times 100 = 20\%$.
23) **Choice D is correct.** 7.RP.3 Discount amount $= 96 - 57.60 = \$38.40$. Percent $= (38.40/96) \times 100 = 40\%$.
24) **The correct answer is 75–85 .** 7.SP.3 Overlap at 75–85 demonstrates that distributions can have different centers and spreads while still sharing common values. A higher median does not mean every value in one group exceeds every value in the other.
25) **Choice C is correct.** 7.EE.1-7.EE.2 Product of 2 and n is $2n$. Three more than $2n$ is $3 + 2n$.
26) **Choice A is correct.** 7.EE.4b "A number plus 8" translates to $x + 8$, and "is less than" translates to $<$.
27) **Choice D is correct.** 7.RP.1-7.RP.3 The unit rate is 0.9 (from the point $(1, 0.9)$). When $x = 5$, $y = 5 \times 0.9 = 4.5$.
28) **Choice D is correct.** 7.RP.3 Wants $= 35\% \times \$3{,}600 = \$1{,}260$. Savings $= 15\% \times \$3{,}600 = \$540$. Difference $= \$1{,}260 - \$540 = \$720$.
29) **Choice C is correct.** 7.NS.2d Divide $1 \div 3 = 0.333\ldots$. The 3 repeats forever, written as $0.\overline{3}$. Since 3 is not a factor of 2 or 5, it is repeating.
30) **Choice A is correct.** 7.NS.1-7.NS.3 Each descent of 3.5 m is negative: $-3.5 \times 6 = -21$ m.
31) **Choice A is correct.** 7.NS.1-7.NS.3 Halved: $\frac{1}{2} \times \frac{9}{8} = \frac{9}{16}$ cups. Scaled by 4: $4 \times \frac{9}{16} = \frac{36}{16} = \frac{9}{4} = 2\frac{1}{4}$ cups.
32) **Choice A is correct.** 7.NS.1-7.NS.3 $10^9 = 1$ billion. So $5.8 \times 10^9 = 5.8$ billion.
33) **Choice A is correct.** 7.EE.1-7.EE.2 Distribute the negative: $16d - 9 - 7d + 4 = (16d - 7d) + (-9 + 4) = 9d - 5$.

Author's Note

A Math Hero Moment

Hi, Math Hero!

◇ This full-length book gave you ten complete Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 7 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

⋆ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ⋆

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 7 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY.
SUCCEED TOMORROW!

This book includes 10 full-length Math practice tests and 2 extra 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:

- **10** Full-Length Printed Tests
- **2** Online Practice Tests
- Detailed Answer 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

Stronger Math Skills
Build a solid foundation through targeted practice and review.

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.

TOPICS COVERED

- Ratios & Proportions
- The Number System
- Expressions & Equations
- Geometry
- Fractions & Decimals
- Percents
- Statistics & Probability
- Data Analysis
- Measurement & Conversions
- And More!

2 EXTRA 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!

VISIT TESTINAR.COM/MATH7

FOR MORE PRACTICE TESTS AND LEARNING RESOURCES.

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY

PRACTICE ★ REVIEW ★ SUCCEED