

# 10

# Illinois IAR

GRADE  
**6**  
MATH

## PRACTICE TESTS

**Standards-Aligned Review**  
**Mixed Practice & Answer Key**



### 10 PRINTED TESTS

Realistic practice to build confidence and mastery



### 2 ONLINE TESTS

Extra practice for continued success



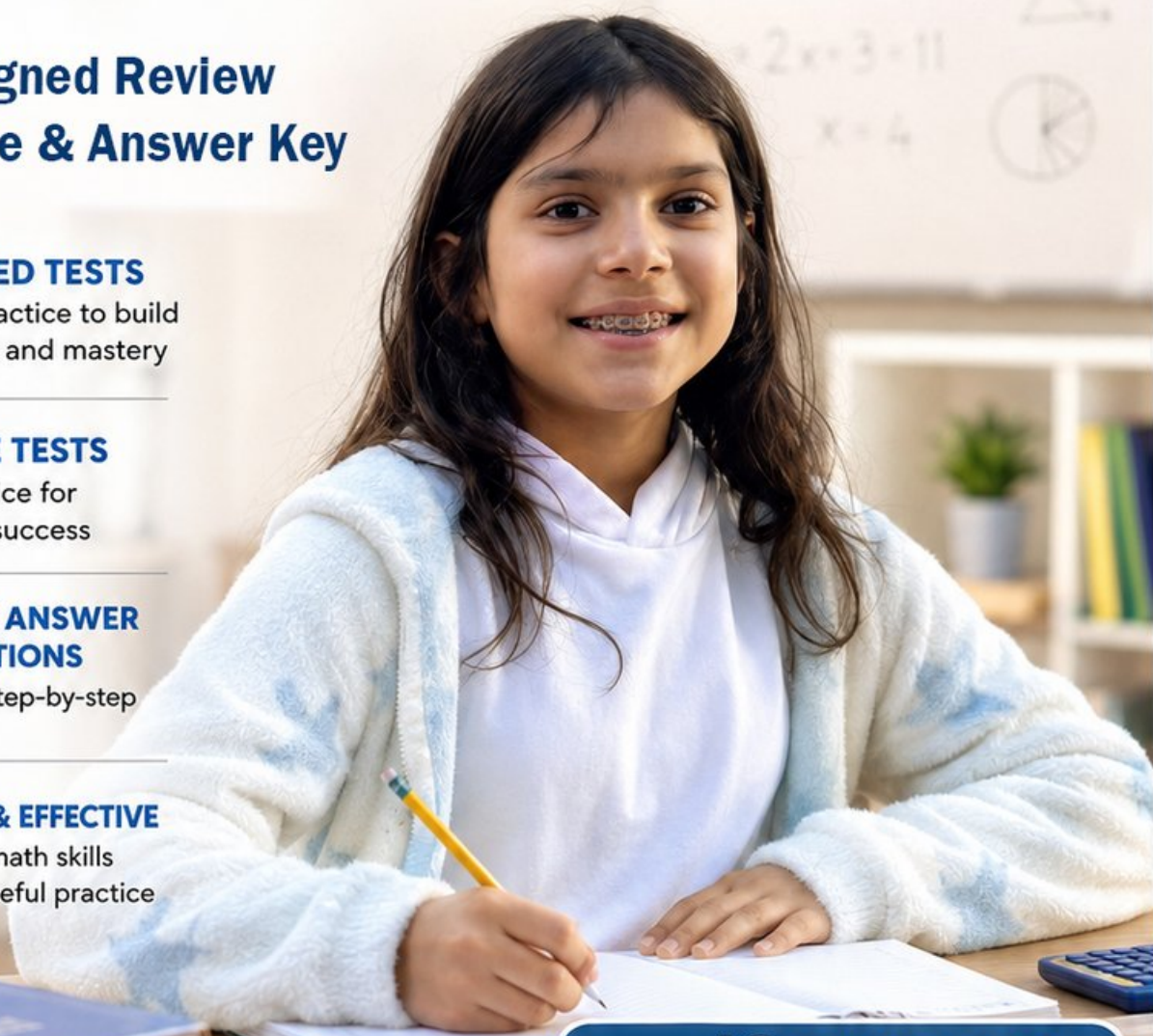
### DETAILED ANSWER EXPLANATIONS

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 6 Math Practice Tests

*Standards-Aligned Sharp Midwestern Focus for Illinois Assessment of Readiness*



Ten complete 40-question Grade 6 practice rounds for IAR, with ratios, rational numbers, expressions, equations, geometry, statistics, answer keys, and clear explanations for every item.

**Jay Daie and Reza Nazari**



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# Welcome, Illinois Math Explorer!

Ten steady rounds on a prairie-to-city math route

This book gives you ten full Grade 6 practice tests for IAR. Each round uses wide fields, busy streets, and organized review steps as a fresh mental backdrop while you read closely, choose a smart strategy, show your work, and check whether your answer makes sense.

## Your Illinois Practice Promise

Use tables, labels, and equations to keep work organized. I will slow down for the question, circle what matters, solve one step at a time, and use mistakes as clues for getting stronger.

Read

Plan

Check

# How to Use This Book

A ten-session routine for sharp Midwestern focus

1. **Preview the skills.** Read the quick review pages before the first test.
2. **Take one test at a time.** Work in a quiet place and answer all 40 questions.
3. **Mark your confidence.** Put a small star beside problems you solved with a strong plan.
4. **Check, then retry.** For missed questions, try the problem again before reading the explanation.
5. **Track your next move.** Use the growth log to name one habit and one skill for the next test.

**Illinois review rhythm:** Test one day, correct carefully the next day, then return for the next round when your corrections feel clear.



## What Is Inside?

Ten IAR tests, 400 questions, and a full review path

| Part         | What You Will Practice   |
|--------------|--|
| Tests 1–3    | Warm-up rounds for ratios, rational numbers, operations, and careful reading.          |
| Tests 4–6    | Skill-building rounds with expressions, equations, geometry, data, and problem models. |
| Tests 7–9    | Stamina rounds for mixed review, neat work, and flexible strategy choices.             |
| Test 10      | 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. Sharp midwestern focus means recognizing the skill even when the next question changes topic.



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For more practice  
& answers

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6) Casey earns \$500 per month. She spends \$200 on rent and \$100 on food, then saves 38% of what is left. How much does she save?

A. \$76

C. \$102

B. \$84

D. \$120

7) What is the prime factorization of 50?

A.  $2 \times 25$

C.  $5 \times 10$

B.  $2 \times 5^2$

D. 50

8) Raw data: 71, 78, 75, 82, 79, 81, 76, 83. If organized in a stem-and-leaf plot, what is the value of the 4th data point when listed in order?

A. 76

C. 79

B. 78

D. 81

9)



The diagram shows coral and green counters. What is the ratio of green to coral?

A. 4 : 3

C. 7 : 4

B. 7 : 3

D. 3 : 4

10) A student reads 45 pages in  $\frac{3}{4}$  hour. What is the reading rate in pages per hour?

A. 34 pages per hour

C. 60 pages per hour

B. 45 pages per hour

D. 68 pages per hour



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11) A video streaming service requires a constant internet speed. A file of 2.4 gigabytes downloads in 8 minutes. What is the download rate in gigabytes per minute?

- A. 0.2 GB/min                       C. 0.4 GB/min  
 B. 0.3 GB/min                       D. 0.5 GB/min

12) A farmer plants corn and soybeans in a 5 : 3 ratio. The table shows equivalent plantings:

| Corn (acres) | Soybeans (acres) |
|--------------|------------------|
| 5            | 3                |
| 10           | 6                |
| ?            | 9                |

- A. 15                                       C. 12  
 B. 14                                       D. 18

13) A printer produces pages at a constant rate. The graph passes through (4, 240) and the origin. What is the value of pages when minutes = 1?

- A. 40 pages per minute               C. 60 pages per minute  
 B. 50 pages per minute               D. 80 pages per minute

14) A square pyramid has a square base with side length 10 cm and a slant height of 13 cm. What is the total surface area including the base (in  $\text{cm}^2$ )?



1) A temperature reading shows  $-5^{\circ}$  F. A warming trend raises it by  $12^{\circ}$  F. What is the new temperature?

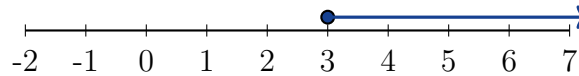
A.  $-17^{\circ}$  F

C.  $7^{\circ}$  F

B.  $-7^{\circ}$  F

D.  $17^{\circ}$  F

2) Which inequality is represented by the number line?



A.  $x < 3$

C.  $x \geq 3$

B.  $x \leq 3$

D.  $x > 3$

3) Which net cannot fold into a cube without overlapping faces?

A. T-shaped net with 6 squares

C. Cross with 6 squares

B. Zigzag with 6 squares

D. Straight line of 6 squares

4) A coach asks: “What is the typical running speed of students on the track team?” Why is this a statistical question?

A. Because running is an athletic activity.

D. Because different team members run at different speeds, and data must

B. Because the coach is a teacher.

be collected.

C. Because the word “typical” is used.

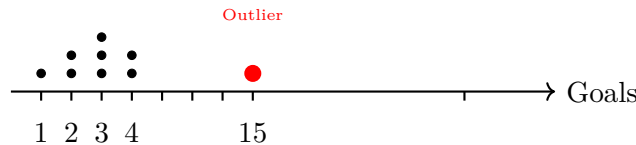


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5) Which measure of center is LEAST affected by outliers?

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

6) A dot plot shows goal counts: 1, 2, 2, 3, 3, 3, 4, 4, 15.



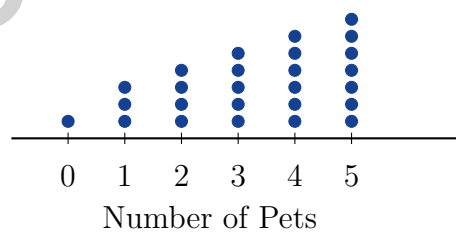
Which measure best describes the typical goal count (excluding the outlier)?

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

7) A survey records hours of sleep for eight students: 6, 7, 6, 8, 9, 7, 8, 10. When ordered: 6, 6, 7, 7, 8, 8, 9, 10. Calculate the mean absolute deviation. (Mean = 7.625)

- A. 0.875
- B. 1.0625
- C. 1.25
- D. 2

8) A dot plot shows the number of pets owned by families in a neighborhood. The data displays a left-skewed pattern. This means:



- A. Most families have fewer pets, with fewer families having more pets
- B. Most families have many pets, with fewer families having fewer pets
- C. The data is evenly distributed
- D. All families have the same number of pets

1)

| Location | Elevation (m) |
|----------|---------------|
| Valley   | -50           |
| Beach    | 0             |
| Mountain | 800           |
| Canyon   | -120          |

Which location is lowest?

- A. Valley                                       C. Mountain  
 B. Beach                                         D. Canyon

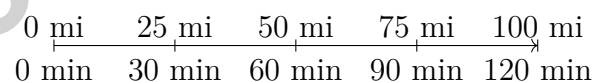
2) A recipe calls for  $\frac{2}{5}$  cup of sugar. What percent is this of 1 cup?

- A. 25%     C. 60%  
 B. 50%     D. 40%

3) A toy that costs \$24 is bought at 20% off. What is the final price?

- A. \$4.80     C. \$14.40  
 B. \$9.60     D. \$19.20

4) A bus travels 25 miles every 30 minutes. How far will it travel in 2 hours?



- A. 75 miles     C. 125 miles  
 B. 100 miles     D. 150 miles



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5)

| Hours   | 1  | 2   | 3   | 4   |
|---------|----|-----|-----|-----|
| Minutes | 60 | 120 | 180 | 240 |

A movie is 2.5 hours long. Using the table pattern, how many minutes is this?

- A. 120 minutes                       C. 200 minutes  
 B. 150 minutes                       D. 300 minutes

6) What is  $6.3 \times 0.9$ ?

- A. 5.67                                   C. 0.567  
 B. 56.7                                   D. 7.2

7) Find the GCF of 38 and 57 using prime factorization.

- A. 1     C. 38  
 B. 57     D. 19

8) Which two expressions are equivalent?

- A.  $8(5 + 3)$  and  $40 + 24$                        C.  $8(5 + 3)$  and  $45 + 24$   
 B.  $8(5 + 3)$  and  $8 + 8$                        D.  $8(5 + 3)$  and  $40 + 3$

9) Which statement correctly compares the two integers  $-6$  and  $-3$ ?

- A.  $-6 > -3$                                    C.  $-6 < -3$   
 B.  $-6 = -3$                                    D.  $-6$  and  $-3$  are opposites

10) A student wrote: "If  $|-12| = 12$ , then  $|12| = -12$ ." Is this reasoning correct?

- A. Yes, they are opposite results                       D. No, absolute value is always non-negative;  $|12| = 12$   
 B. Cannot be determined  
 C. Yes, one is positive and one is negative



## Illinois IAR Practice Test Answer Keys

**How to use this section with a Grade 6 student:**

1. check the answer first
2. mark questions to try again
3. rework the problem before reading the full explanation

**A calm correction routine turns every missed item into useful practice.**

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## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (6.RP.A.3a) The upper whisker extends from  $Q_3$  to max:  $29 - 19 = 10$  units long.
- 2) **The correct answer is 50.** (6.G.A.3) Area =  $\frac{1}{2}(12 + 8) \times 5 = \frac{1}{2}(20)(5) = 50 \text{ cm}^2$ .
- 3) **Choice C is correct.** (6.SP.B.5c) Shortfall:  $15\%$  of  $\$20000 = 0.15 \times 20000 = \$3000$ .
- 4) **Choice C is correct.** (6.SP.B.5c) Actual dimensions:  $5 \times 2 = 10$  m and  $3 \times 2 = 6$  m. Perimeter:  $2(10 + 6) = 32$  m.
- 5) **Choice D is correct.** (6.NS.B.3) The marker-to-flag ratio is  $9 : 3$ , which simplifies to  $3 : 1$ . That means for every 3 markers there is 1 flag, not the reverse.
- 6) **Choice A is correct.** (6.RP.A.3) Remainder after rent and food:  $\$500 - \$200 - \$100 = \$200$ . Savings:  $38\%$  of  $\$200 = 0.38 \times 200 = \$76$ .
- 7) **Choice B is correct.** (6.NS.C.7d)  $50 = 2 \times 25 = 2 \times 5 \times 5 = 2 \times 5^2$ . Options A and C use composite numbers; D is not factored.
- 8) **Choice B is correct.** (6.EE.B.5) In order: 71, 75, 76, 78, 79, 81, 82, 83. The 4th value is 78.
- 9) **Choice D is correct.** (6.EE.A.3) The order is green to coral. Count 3 green counters and 4 coral counters, so the ratio is  $3 : 4$ .
- 10) **Choice C is correct.** (6.EE.A.2a) Divide pages by time:  $45 \div \frac{3}{4} = 45 \times \frac{4}{3} = \frac{180}{3} = 60$  pages per hour.
- 11) **Choice B is correct.** (6.EE.A.3)  $2.4 \div 8 = 0.3$  gigabytes per minute.
- 12) **Choice A is correct.** (6.EE.C.9) The ratio is  $5 : 3$ . When soybeans are 9 (multiply by 3), corn is  $5 \times 3 = 15$  acres.
- 13) **Choice C is correct.** (6.G.A.1) The unit rate is  $\frac{240 \text{ pages}}{4 \text{ minutes}} = 60$  pages per minute. When the x-value is 1 minute, the y-value is 60 pages.
- 14) **The correct answer is 360.** (6.NS.C.8) Base area =  $10^2 = 100 \text{ cm}^2$ . Lateral area =  $4 \times \frac{1}{2}(10)(13) = 260 \text{ cm}^2$ . Total  $SA = 100 + 260 = 360 \text{ cm}^2$ .
- 15) **Choice A is correct.** (6.NS.B.3) Counting the shaded squares: 18 in the upper region + 8 in the right region = 26 squares out of 100. So 26%.
- 16) **Choice A is correct.** (6.EE.A.2b) Increase is  $90 - 82 = 8$ . Percent increase is  $\frac{8}{82} \approx 0.0976 \approx 9.8\%$ , which rounds to 10% to the nearest whole percent.
- 17) **Choice D is correct.** (6.EE.A.2c) Unit rate:  $45 \div 3 = 15$  dollars per hour. Verify:  $90 \div 6 = 15$  and  $135 \div 9 = 15$ .
- 18) **Choice B is correct.** (6.EE.B.8) Multiply:  $5 \times 1000 = 5000$  meters.
- 19) **Choice D is correct.** (6.EE.B.8) Using  $p = 12y$  with  $y = 2.5$ :  $p = 12 \times 2.5 = 30$  dollars.
- 20) **Choice A is correct.** (6.G.A.1) The correct answer is  $\frac{4}{9} \times \frac{9}{2} = \frac{36}{18} = 2$ . The student calculated  $\frac{4}{9} \times \frac{2}{9} = \frac{8}{81}$ .
- 21) **Choice A is correct.** (6.NS.C.8) Use long division or estimation:  $24 \times 50 = 1,200$ , leaving 48. Then  $48 \div 24 = 2$ , so  $1,248 \div 24 = 52$ .
- 22) **The correct answer is A:**  $\frac{1}{2} \times 14 \times 9 = 63 \text{ m}^2$  (correct). **D:**  $\frac{1}{2} \times 6 \times 15 = 45 \text{ in}^2$  (correct).. (6.G.A.1) A is correct because  $\frac{1}{2} \times 14 \times 9 = 63 \text{ m}^2$ . D is correct because  $\frac{1}{2} \times 6 \times 15 = 45 \text{ in}^2$ . B doubles instead of halves, C uses the inverse formula incorrectly, and E describes the wrong effect of tripling the base.
- 23) **Choice A is correct.** (6.G.A.4) Subtract:  $\$34.50 - \$7.25 = \$27.25$ .
- 24) **Choice D is correct.** (6.SP.A.2)  $24 + 36 = 60$ . Choice A:  $6(4 + 6) = 60$  ✓. Choice B:  $12(2 + 3) = 60$  ✓. Choice C:  $4(6 + 9) = 60$  ✓. Choice D:  $3(7 + 12) = 57$  ✗. Only Choice D is not equivalent to 60.
- 25) **Choice A is correct.** (6.SP.B.4) Opposites are two numbers that are the same distance from zero but on opposite sides of zero. 3 is 3 units right of zero, and  $-3$  is 3 units left of zero.
- 26) **Choice A is correct.** (6.SP.B.4) Zero is its own opposite.  $0 = -0$ .
- 27) **Choice B is correct.** (6.RP.A.1) The point 2.6 is six tenths of the way from 2 to 3, making it exactly the position given.
- 28) **Choice A is correct.** (6.NS.A.1) When reflecting across the  $y$ -axis, the point flips left to right. This changes the sign of the  $x$ -coordinate while the  $y$ -coordinate stays the same.



## Hi, Math Champion!

◇ You trained hard! 10 full practice tests is real practice. Your math game is way better now than when you started. ◇

★ **Coach's truth:** kids who practice get better. You practiced. You got better. That's how it works!  
★

### Your Game Stats

- **Energy:** HIGH! You can finish a long test.
- **Smart Plays:** You know lots of strategies.
- **Calm Head:** You stay cool with hard problems.
- **Game-Day Ready:** You feel strong and prepared.

**Coach's tip:** the night before the test, get good sleep. Eat a good breakfast. Bring a sharp pencil. Trust your training!

If you want to share something or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com).

**Jay Daie**

Your Math Coach

# PRACTICE MORE. ACHIEVE MORE. SUCCEED!

This **Grade 6 Math Practice Tests** book is designed to help students build strong math skills, deepen their understanding of key concepts, and gain the confidence they need to succeed on any test.

With 10 full-length printed tests and 2 online tests, students get the review, practice, and realistic test experience they need to improve accuracy, strengthen problem-solving abilities, and reach their full potential.

Perfect for classroom use, homework, test preparation, and extra practice at home.

## PERFECT FOR:

- ✓ Classroom Practice
- ✓ Homework & Review
- ✓ Independent Learning
- ✓ Test Preparation
- ✓ Skill Reinforcement
- ✓ Building Confidence



**CONFIDENCE TODAY.  
SUCCESS TOMORROW!**

## WHAT STUDENTS WILL GAIN



### Stronger Math Skills

Build a solid foundation through targeted practice and review.



### Better Problem Solving

Develop logical thinking and effective solution strategies.



### Deepen Understanding

Reinforce key math concepts aligned with standards.



### Test Confidence

Get familiar with test formats and improve accuracy.



### Achieve Success

Build confidence and perform your best on test day.

## TOPICS COVERED

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



## 2 ONLINE TESTS

Extra online practice to reinforce learning and build confidence.

## MORE PRACTICE. GREATER RESULTS.

Give your child the tools needed to develop strong math skills, confidence, and a positive attitude toward learning.



10 PRINTED  
PRACTICE TESTS



2 ONLINE  
PRACTICE TESTS



DETAILED ANSWER  
EXPLANATIONS