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Illinois IAR

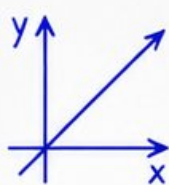
GRADE

7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs



$$y = mx + b$$

$$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$$



$$V = \pi r^2 h$$



5 PRINTED
TESTS



2 ONLINE
TESTS

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



Build
Confidence



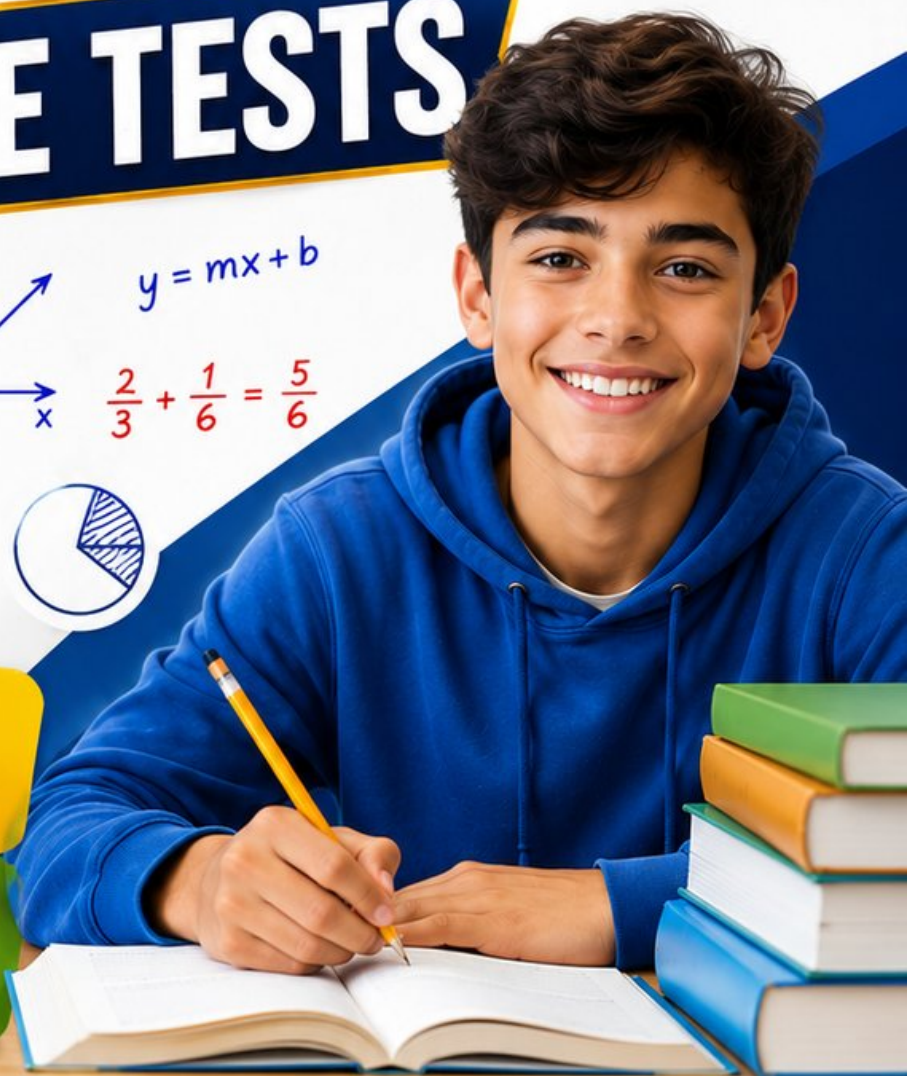
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



5 Illinois IAR Grade 7 Math Practice Tests

Focused Practice for Grade 7 Skills, Review, and Test Confidence



Five 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!

Five focused rounds for sharper IAR math thinking

This book gives you five 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 five-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?

Five IAR tests, 200 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 3–5	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.



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& answers

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1) Calculate $14 + 11$.

☐ A. 3

☐ C. 25

☐ B. -25

☐ D. 154

2) What is $4 - (-7)$?

☐ A. -11

☐ C. 3

☐ B. -3

☐ D. 11

3) A sector measuring 252° represents what percent of a circle?

☐ A. 63%

☐ C. 75%

☐ B. 70%

☐ D. 85%

0% 50% 100%



0 ? 200



4)

The double number line shows percents and values. What is 50% of 200?

☐ A. 50

☐ C. 100

☐ B. 75

☐ D. 150

5) A book is on sale for 18% off its original price of \$50. How much is saved?

☐ A. \$7

☐ C. \$4

☐ B. \$32

☐ D. \$9



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6) Which expression represents “the difference of 10 and a number w ”?

☐ A. $10w$

☐ C. $10 - w$

☐ B. $w - 10$

☐ D. $10 + w$

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

☐ A. 9

☐ C. 4

☐ B. 5

☐ D. 13

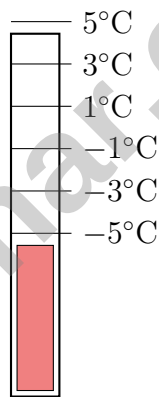
8) If y is proportional to x , and a point is $(2, 6)$, what is the constant of proportionality?

☐ A. $k = \frac{1}{3}$

☐ C. $k = 6$

☐ B. $k = 2$

☐ D. $k = 3$



9)

The thermometer shows the current temperature. If the temperature drops 2°C , what will the new temperature be?

☐ A. -7°C

☐ C. -3°C

☐ B. -5°C

☐ D. 3°C



- 10) A coach records sprint times for five athletes: 9.2, 8.8, 9.5, 9.1, 8.9 seconds. What is the average?
- ☐ A. 9.1 seconds ☐ C. 9.2 seconds
☐ B. 9 seconds ☐ D. 8.9 seconds
- 11) A researcher measures a particle at 6.3×10^{-8} cm. How would this appear on a place-value chart?
- ☐ A. 0.0000000063 cm ☐ C. 63,000,000 cm
☐ B. 0.0000000063 cm ☐ D. 630,000,000 cm
- 12) A paint mixture uses $\frac{2}{5}$ can of white paint and $\frac{3}{5}$ can of blue paint. What is the ratio of white to blue?
- ☐ A. 5 to 3 ☐ C. 2 to 5
☐ B. 3 to 2 ☐ D. 2 to 3



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$$3 \times \begin{array}{|c|c|} \hline 2x & 1 \\ \hline \end{array}$$

1) $3(2x + 1) = 21$

Solve for x : $3(2x + 1) = 21$

☐ A. $x = 2$

☐ C. $x = 4$

☐ B. $x = 3$

☐ D. $x = 5$

2)

Sample	Left-Handed	Total
Sample A	12	80
Sample B	15	75
Sample C	18	120

Which sample shows the highest proportion of left-handed individuals?

☐ A. Sample A

☐ C. Sample C

☐ B. Sample B

☐ D. All have equal proportions

3) The table shows a proportional relationship between hours worked and earnings.

Hours	Earnings (\$)
2	18
4	36
6	54

What is the constant of proportionality?

☐ A. $k = 36$

☐ C. $k = 2$

☐ B. $k = 18$

☐ D. $k = 9$



- 4) A cube's surface area is 294 cm^2 . A second cube has edge length twice as long. What is the surface area of the larger cube?
- ☐ A. 588 cm^2 ☐ C. 1764 cm^2
☐ B. 1176 cm^2 ☐ D. 2352 cm^2
- 5) A student designs a simulation using a spinner with 10 equal sections to estimate the probability of an event. After 1000 spins, one section appears 98 times. How does this estimated probability compare to the theoretical probability of $\frac{1}{10} = 0.1$?
- ☐ A. The estimated probability is 0.098, slightly lower than theoretical
☐ B. The estimated probability is 0.098, which matches theoretical exactly
☐ C. The estimated probability is 0.102, slightly higher than theoretical
☐ D. The difference is too large to compare meaningfully
- 6) Which value of x satisfies $4x + 2 = 18$?
- ☐ A. $x = 2$ ☐ C. $x = 5$
☐ B. $x = 4$ ☐ D. $x = 8$
- 7) Solve: $3x - 4 \leq 11$
- ☐ A. $x \geq 5$ ☐ C. $x > 5$
☐ B. $x \leq 5$ ☐ D. $x \leq 15$
- 8) A water pipe has radius 3.5 cm. Using $\pi \approx \frac{22}{7}$, what is the circumference?
- ☐ A. 22 cm ☐ C. 88 cm
☐ B. 44 cm ☐ D. 11 cm



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1) Simplify: $\frac{(u^4)^2}{u^3}$

☐ A. u^5

☐ C. u^8

☐ B. u^{11}

☐ D. u^{24}

2) The population of a city is 1.5×10^6 . How is this number written in standard form?

☐ A. 15,000

☐ C. 1,500,000

☐ B. 150,000

☐ D. 15,000,000

3) Solve: $1.5x - 3 \leq 4.5$

☐ A. $x \leq 5$

☐ C. $x < 5$

☐ B. $x \geq 5$

☐ D. $x \leq 4.5$

4) In a class of 25 students, 15 play a sport. What percent of the students play a sport?

☐ A. 25%

☐ C. 50%

☐ B. 40%

☐ D. 60%

5) What is $-\frac{3}{5} + \frac{4}{5}$?

☐ A. $-\frac{7}{5}$

☐ C. $\frac{3}{5}$

☐ B. $\frac{1}{5}$

☐ D. $-\frac{1}{5}$

6) Simplify $\frac{-3}{4} \div \frac{9}{16}$.

☐ A. $-\frac{4}{3}$

☐ C. $\frac{27}{64}$

☐ B. $-\frac{27}{64}$

☐ D. $\frac{4}{3}$



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& answers

7) Convert $\frac{11}{50}$ to a decimal.

☐ A. 0.11

☐ C. 0.50

☐ B. 0.22

☐ D. 0.55

8) Which expression is equivalent to $2a + 2b + 2c$?

☐ A. $2(a + b + c)$

☐ C. $2abc$

☐ B. $2(a + b) + c$

☐ D. $(2 + a)(2 + b)(2 + c)$

9) A concert ticket costs \$35 and a service fee is \$6.50 per ticket. If someone buys 3 tickets, what is the total cost?

☐ A. $3(35 + 6.50) = \$124.50$

☐ C. $35 + 3 + 6.50 = \$44.50$

☐ B. $3(35) + 3(6.50) = \$124.50$

☐ D. $35(3) + 6.50 = \$111.50$

10)

x	$x + 3$	$2(x + 3)$	$2(x + 3) - 5$
1	4	8	3
2	5	10	5
3	6	12	7

If $2(x + 3) - 5 = 11$, what is x ? Show steps and verify.

☐ A. $x = 3$

☐ C. $x = 7$

☐ B. $x = 5$

☐ D. $x = 9$

11) A square in a scale drawing has a side length of 2 cm. The scale is 1 cm : 3 m. What is the area of the actual square in square meters?

☐ A. 9 m^2

☐ C. 36 m^2

☐ B. 12 m^2

☐ D. 72 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 C is correct. (7.NS.1b) Both numbers are positive. Add them directly: $14 + 11 = 25$.
- 2) Choice D is correct. (7.NS.1-7.NS.3) Subtracting a negative is the same as adding its opposite: $4 - (-7) = 4 + 7 = 11$.
- 3) Choice B is correct. (7.SP.1-7.SP.4) $252^\circ \div 360^\circ \times 100 = 70\%$.
- 4) Choice C is correct. (7.RP.3) 50% is half; half of 200 is 100.
- 5) Choice D is correct. (7.RP.3) Savings = $0.18 \times 50 = \$9$.
- 6) Choice C is correct. (7.EE.1-7.EE.2) Difference of 10 and w means 10 minus w : $10 - w$.
- 7) Choice B is correct. (7.EE.1) Simplify: $(9 - 4)x + 2y = 5x + 2y$. The coefficient of x is 5.
- 8) Choice D is correct. (7.RP.1-7.RP.3) From $y = kx$: $6 = k(2)$, so $k = \frac{6}{2} = 3$.
- 9) Choice C is correct. (7.NS.1-7.NS.3) Current temp (at mercury level) is -1°C . Drop of 2°C : $-1 - 2 = -3^\circ\text{C}$.
- 10) Choice A is correct. (7.NS.1-7.NS.3) Average = $\frac{9.2+8.8+9.5+9.1+8.9}{5} = \frac{45.5}{5} = 9.1$ seconds.
- 11) Choice A is correct. (7.NS.1-7.NS.3) 6.3×10^{-8} means move the decimal 8 places left: $6.3 \rightarrow 0.000000063$.
- 12) Choice D is correct. (7.RP.1-7.RP.3) The ratio is $\frac{2}{5} : \frac{3}{5} = 2 : 3$.
- 13) Choice C is correct. (7.RP.1-7.RP.3) Since the relationship is proportional, $k = \frac{y}{x} = \frac{9}{3} = 3$.
- 14) Choice D is correct. (7.RP.3) Set up the proportion $\frac{42}{280} = \frac{p}{100}$. Cross-multiply: $p = \frac{4200}{280} = 15\%$.
- 15) The correct answer is \$720. (7.RP.1-7.RP.3) Use $18 \times 40 = 720$ dollars.
- 16) Choice B is correct. (7.NS.1-7.NS.3) Starting at -2 and moving right 3 units: $-2 + 3 = 1$.
- 17) Choice C is correct. (7.NS.1-7.NS.3) Multiply by the reciprocal: $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = \frac{3}{2}$.
- 18) The correct answer is 31.25. (7.RP.1-7.RP.3) $50 \text{ m} = 5000 \text{ cm}$. Divide by scale: $5000 \div 160 = 31.25 \text{ cm}$.
- 19) Choice B is correct. (7.NS.2d) Divide $5 \div 8 = 0.625$. It is a terminating decimal.
- 20) Choice A is correct. (7.SP.5-7.SP.8) The largest sector is 144° out of 360° : $P = \frac{144}{360} = \frac{2}{5} = 0.4$.
- 21) Choice C is correct. (7.NS.2) Row C correctly demonstrates $(+) \times (-) = -12$: $6 \times (-2) = -12$ ✓. Row A error: $5 \times 3 = 15$ (not 8). Row B error: $(-4) \times (-2) = 8$ (positive, not -8). Row D error: $(-7) \times 3 = -21$ (negative, not 21).
- 22) The correct answer is A,C. (7.SP.1-7.SP.4) Sample 1: $\frac{36}{120} = 0.30$; Sample 2: $\frac{27}{90} = 0.30$. Both show 30%, so A is true. Equal proportions allow reliable population estimates (C is true). B and D is false (Sample 1 is larger at 120 vs 90).
- 23) Choice B is correct. (7.NS.1-7.NS.3) $2 \times 2 = 4$, so $\sqrt{4} = 2$.
- 24) Choice A is correct. (7.SP.3) Group X's data concentrates at 30–40 minutes with a clear peak at 35, making it predictable. Group Y spreads across 15–55 minutes, making individual homework times unpredictable.
- 25) Choice C is correct. (7.RP.3) Total fee = $35 + (0.50 \times 80) = 35 + 40 = \75 .
- 26) Choice D is correct. (7.RP.3) Year 1 interest: $400 \times 0.12 = 48$. Year 2 balance: 448; year 2 interest: $448 \times 0.12 = 53.76$. Difference: $53.76 - 48 = 5.76$.
- 27) Choice C is correct. (7.G.4-7.G.6) Decompose into a central rectangle and two triangles on opposite sides. Rectangle: $14 \times 10 = 140 \text{ ft}^2$. Two triangles: $2 \times \left(\frac{1}{2} \times 10 \times 4\right) = 40 \text{ ft}^2$. Total: $140 + 40 = 180 \text{ ft}^2$.
- 28) Choice C is correct. (7.RP.1-7.RP.3) Set up: $\frac{25}{100} = \frac{18}{x}$. Cross multiply: $25x = 1800$, so $x = 72$.
- 29) Choice C is correct. (7.RP.3) Find each unit price. Brand X: $\$4.00 \div 16 = \0.25 per oz. Brand Y: $\$3.60 \div 12 = \0.30 per oz. Brand X is cheaper per ounce.
- 30) Choice C is correct. (7.G.4-7.G.6) Base area = $\frac{1}{2} \times 8 \times 9 = 36 \text{ m}^2$. Volume = $36 \times 5 = 180 \text{ m}^3$.
- 31) Choice D is correct. (7.RP.1-7.RP.3) In the equation $c = 2.5h$, the coefficient $k = 2.5$ is the constant of proportionality (unit rate per hour).
- 32) The correct answer is 0.03. (7.RP.3) $240 = 2000 \times r \times 4 \Rightarrow 240 = 8000r \Rightarrow r = 0.03$.
- 33) Choice C is correct. (7.RP.3) Increase = $40\% \times \$15 = 0.40 \times \$15 = \$6$. New cost = $\$15 + \$6 = \$21$.



Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 7 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 7 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **5** 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:

5 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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