

6

MINNESOTA

MCA III

GRADE

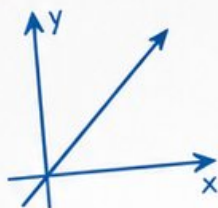
7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving For
Comprehensive
Assessment Programs

$$y = mx + b$$



$$2(x - 3) = 4x + 6$$



6 PRINTED TESTS



2 ONLINE TESTS



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



Build
Confidence



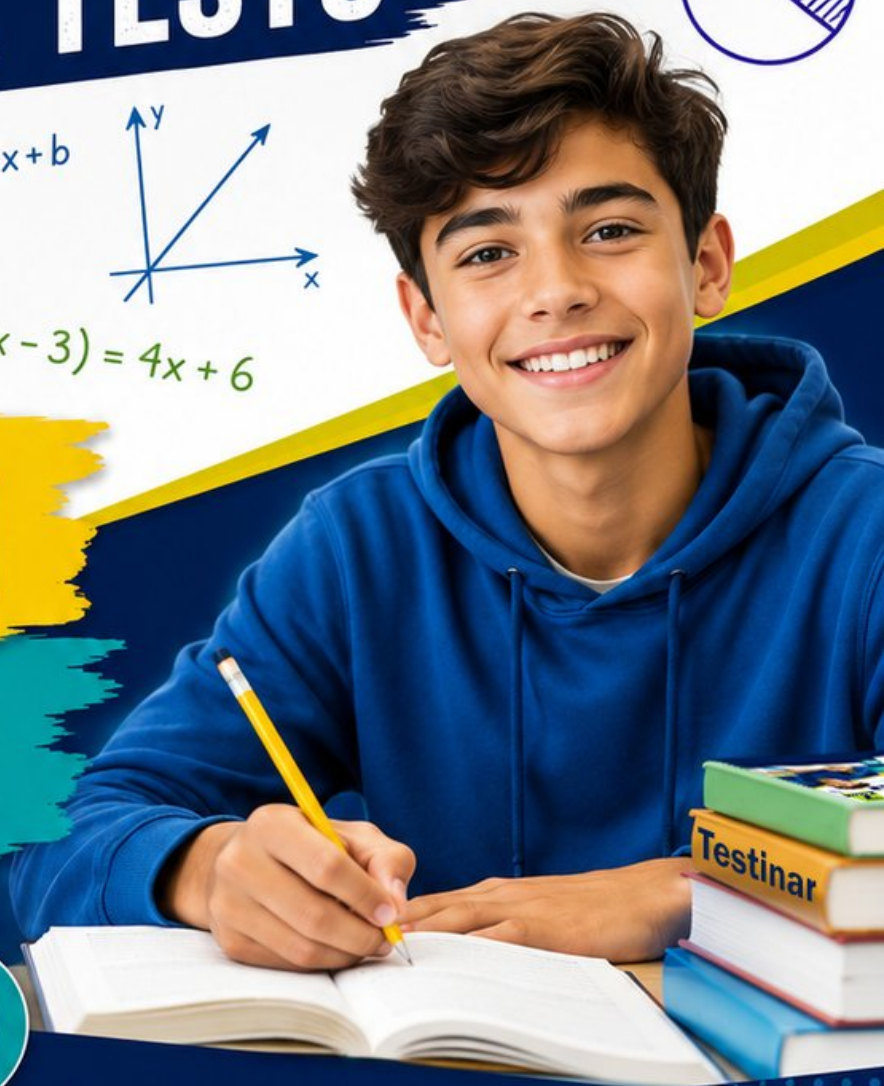
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



6 Minnesota MCA III Grade 7 Math Practice Tests

Standards-Aligned Practice with Review, Answer Keys, and Explanations



Six complete 40-question Grade 7 MCA III 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, Minnesota Grade 7 Problem Solver!

Six focused rounds for sharper MCA III math thinking

This book gives you six full Grade 7 MCA III 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 Minnesota 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 six-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.

Minnesota 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?

Six MCA III tests, 240 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.
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) A recipe scales proportionally. The base recipe uses $\frac{1}{3}$ cup sugar for every $\frac{2}{3}$ cup flour. What is the constant of proportionality (flour per sugar)?

☐ A. $k = \frac{1}{2}$
☐ B. $k = \frac{3}{2}$

☐ C. $k = \frac{2}{3}$
☐ D. $k = 2$

\$20 fee	\$4.50n
----------	---------

- 2) Total cost T

A dance studio charges per-class fees shown in the bar model. If there's a \$20 registration fee and \$4.50 per class, which equation shows the total cost T for n classes?

☐ A. $T = 4.50n + 20$
☐ B. $T = 20n + 4.50$

☐ C. $T = 4.50 + 20n$
☐ D. $T = (4.50 + 20)n$

- 3) A triangle has vertices at $A(1, 0)$, $B(3, 0)$, and $C(2, 2)$. If the triangle is reflected over the x -axis, what are the new coordinates of vertex C ?

- 4) Which situation best describes a *random sample*?

- ☐ A. Surveying the first 30 people at a public event
☐ B. Drawing names from a hat containing all members' names
☐ C. Asking volunteers to participate in a study
☐ D. Interviewing people at a shopping mall on a Saturday



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5) A student claims that if a cylinder has twice the radius and half the height of another cylinder, the volumes will be equal. Is this claim true or false? Use $\pi \approx 3.14$.

- ☐ A. True, because $2r$ and $\frac{h}{2}$ cancel out ☐ C. False, the second cylinder has a larger volume
☐ B. False, the first cylinder has a larger volume ☐ D. True, only if $r = h$

6) A running club tracks weekly mileage for two runners over 5 weeks:

Runner	5-Week Data	Conclusion
Alex	10, 12, 11, 13, 9	Mean = 11, MAD = 1.2
Blake	5, 20, 10, 15, 10	Mean = 12, MAD = 4.0

Which interpretation is correct?

- ☐ A. Alex is more disciplined (consistent 11 mi/week) ☐ C. Both runners cover identical weekly distances
☐ B. Blake averages more miles per week ☐ D. Blake is more consistent
- 7) A stem-and-leaf plot represents math test scores. The back-to-back format compares two classes: Class A (left) and Class B (right). If Class B's stem 8 shows leaves 0, 2, 5, 7, 9 on the right, what scores does this represent?

- ☐ A. 80, 82, 85, 87, 89 ☐ C. 8, 2, 5, 7, 9
☐ B. 08, 02, 05, 07, 09 ☐ D. 88, 82, 85, 87, 89

8) A spinner has 10 equally-sized sections. 4 are labeled "Red", 3 are labeled "Blue", and 3 are labeled "Yellow". What is the probability of spinning Blue?

- ☐ A. $\frac{3}{10}$ ☐ C. $\frac{4}{10}$
☐ B. $\frac{1}{3}$ ☐ D. $\frac{3}{7}$



- 9) An organized list shows all outcomes when drawing one tile from {M, A, T} and one from {1, 2, 3, 4}. How many ordered pairs should the complete list have?

M1, M2, M3, M4, A1, A2, A3, A4, T1, T2, T3, T4

- ☐ A. 7 pairs ☐ C. 12 pairs
☐ B. 9 pairs ☐ D. 16 pairs
- 10) A fair six-sided die is rolled twice. What is the probability of rolling a 3 on the first roll AND a 5 on the second roll?

- ☐ A. $\frac{1}{6}$ ☐ C. $\frac{1}{36}$
☐ B. $\frac{1}{12}$ ☐ D. $\frac{1}{18}$

- 11) A survey asked 180 customers which payment method they prefer:

Method	Credit Card	Debit Card	Cash
Count	85	62	33

What is the experimental probability that a randomly selected customer prefers cash?

- ☐ A. $\frac{33}{180}$ ☐ C. $\frac{85}{180}$
☐ B. $\frac{33}{62}$ ☐ D. $\frac{62}{85}$
- 12) A student mistakenly writes: “Stem 2 with leaves 3, 5, 7 represents 3, 5, 7.” What is the error?
- ☐ A. The leaves are not in ascending order ☐ C. The stems and leaves are reversed
☐ B. The student forgot to combine the stem with each leaf ☐ D. There is no error; the representation is correct



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1) Solve: $5x - 15 = 10$

☐ A. $x = 3$

☐ B. $x = 5$

☐ C. $x = 7$

☐ D. $x = 9$

2) If an angle measures 29° , what is the measure of an angle supplementary to it?

☐ A. 29°

☐ B. 61°

☐ C. 151°

☐ D. 209°

3) A dot plot displays the number of hours students exercise per week: 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 6. What is the mode of the data?



4) A house's value decreased from \$300 000 to \$255 000. What is the percent decrease?

☐ A. 85%

☐ B. 17.6%

☐ C. 45 000%

☐ D. 15%

5) A standard die is rolled and a coin is flipped. How many favorable outcomes result in rolling a 5 or 6 and flipping Heads?

☐ A. 2

☐ B. 4

☐ C. 6

☐ D. 8



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- 6) A bag contains 4 red, 3 blue, and 2 green marbles. If one marble is drawn at random, what is the probability it is NOT blue?

☐ A. $\frac{3}{9}$
☐ B. $\frac{6}{9}$

☐ C. $\frac{4}{9}$
☐ D. $\frac{2}{9}$

- 7) An estimate of 42 meters has a percent error of 16.7% compared to the actual distance. What was the actual distance?

☐ A. 35 meters
☐ B. 48 meters

☐ C. 36 meters
☐ D. 50 meters

- 8) A student has a probability of 0.2 of being late to school. Out of 50 school days, how many days should the student expect to NOT be late?

- 9) Which of the following is the expanded form of $-4(2y - 3)$?

☐ A. $-8y - 12$
☐ B. $-8y + 12$

☐ C. $8y + 12$
☐ D. $8y - 3$

- 10) What is $-7 - 4$?

☐ A. 3
☐ B. -3

☐ C. -11
☐ D. 11



- 1) A circle graph shows website traffic sources. Direct traffic is 15%, organic search is 50%, paid ads is 20%, and referrals is 15%. If there are 10,000 monthly visitors, how many come from organic search?

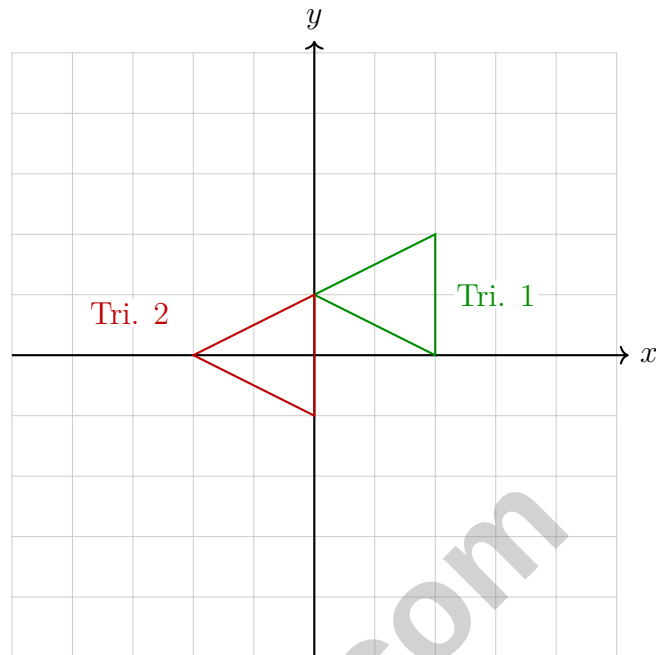
☐ A. 1500☐ C. 5000☐ B. 2000☐ D. 7500

- 2) A rectangular courtyard measures 18 meters by 24 meters. A scale drawing is made where 1 cm represents 3 meters. What is the width of the drawing?

☐ A. 3 cm☐ C. 8 cm☐ B. 6 cm☐ D. 12 cm

- 3) Triangle ABC has sides 13 cm, 5 cm, and 12 cm. Compute $13^2 - (5^2 + 12^2)$.





4)

Triangle 1 (green) is transformed to Triangle 2 (red). What single transformation maps Triangle 1 to Triangle 2?

- ☐ A. Translation only ☐ D. Reflection over the x -axis followed by a translation
☐ B. Rotation of 180° about the origin
☐ C. Reflection over the y -axis

5) A teacher wants to know if two classes have similar skill levels in writing. Which pair of statistics should she compare?

- ☐ A. Only the ranges ☐ C. Only mode
☐ B. Medians and IQRs (center and spread) ☐ D. Only the maximum scores



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Minnesota MCA III 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 Minnesota MCA III 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) Ratio: $\frac{\text{flour}}{\text{sugar}} = \frac{2/3}{1/3} = \frac{2}{3} \times \frac{3}{1} = 2$.
- 2) **Choice A is correct.** (7.EE.4a) Per-class cost \$4.50 times n classes, plus fixed registration fee \$20.
- 3) **The correct answer is (2, -2).** (7.G.1-7.G.5) Reflection over the x -axis uses the rule $(x, y) \rightarrow (x, -y)$. Applying this to $C(2, 2)$: $C' = (2, -2)$.
- 4) **Choice B is correct.** (7.SP.1-7.SP.4) Drawing names from a hat where every name has an equal chance of being selected is a classic random sample. The others involve convenience, first-come, or self-selection biases.
- 5) **Choice B is correct.** (7.G.4-7.G.6) Original: $V_1 = \pi r^2 h$. Modified: $V_2 = \pi(2r)^2(\frac{h}{2}) = \pi \times 4r^2 \times \frac{h}{2} = 2\pi r^2 h = 2V_1$. The first cylinder has twice the volume.
- 6) **Choice A is correct.** (7.SP.1-7.SP.4) Alex: mean 11, MAD 1.2 (very tight clustering). Blake: mean 12, MAD 4.0 (highly variable). Despite Blake's slightly higher average, Alex's low MAD shows consistent weekly effort, indicating greater discipline.
- 7) **Choice A is correct.** (7.SP.1-7.SP.4) In a stem-and-leaf plot, stem 8 with leaves 0, 2, 5, 7, 9 represents 80, 82, 85, 87, 89.
- 8) **Choice A is correct.** (7.SP.5-7.SP.8) Blue sections: 3 out of 10. $P(\text{Blue}) = \frac{3}{10}$.
- 9) **Choice C is correct.** (7.SP.5-7.SP.8) Letters: 3; numbers: 4. Total: $3 \times 4 = 12$ ordered pairs.
- 10) **Choice C is correct.** (7.SP.5-7.SP.8) $P(3) \cdot P(5) = \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$ for independent events.
- 11) **Choice A is correct.** (7.SP.6) The relative frequency of cash preference is $\frac{\text{cash count}}{\text{total surveyed}} = \frac{33}{180} \approx 0.183$.
- 12) **Choice B is correct.** (7.SP.1-7.SP.4) Stem 2 with leaves 3, 5, 7 represents 23, 25, 27, not 3, 5, 7.
- 13) **Choice C is correct.** (7.SP.5-7.SP.8) $\frac{1}{4} = 0.25 = 25\%$.
- 14) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|45-50|}{50} \times 100\% = \frac{5}{50} \times 100\% = 10\%$.
- 15) **Choice D is correct.** (7.EE.1-7.EE.2) The diagram shows $3(x) + 3(2) = 3x + 6$. The missing value is 6.
- 16) **Choice B is correct.** (7.NS.1-7.NS.3) $7 - (-2) - 5 = 7 + 2 - 5 = 9 - 5 = 4$. Convert the subtraction of a negative first.
- 17) **The correct answer is 44.** (7.G.4-7.G.6) $C = 2\pi r = 2 \times \frac{22}{7} \times 7 = 2 \times 22 = 44$ cm.
- 18) **Choice D is correct.** (7.RP.1-7.RP.3) Linear scale of $\frac{1}{10}$ means area scales by $(\frac{1}{10})^2 = \frac{1}{100}$. Model area = $400 \div 100 = 4$ m².
- 19) **Choice D is correct.** (7.RP.3) STEP 1: Convert 6 months to years: $t = 6 \div 12 = 0.5$ years. STEP 2: $I = 1500 \times 0.12 \times 0.5 = \90 .
- 20) **Choice A is correct.** (7.EE.1) x terms: $3x + 5x - 2x = (3 + 5 - 2)x = 6x$. y terms: $4y + y - 3y = (4 + 1 - 3)y = 2y$. Result: $6x + 2y$.
- 21) **The correct answer is B, C.** (7.G.1-7.G.5) B and C are both correct. When two lines intersect, they form two pairs of vertical angles (congruent pairs) and four pairs of supplementary adjacent angles. One angle is 73° ; its vertical angle is also 73° (C). The adjacent angles are each $180 - 73 = 107^\circ$. So the four angles are: $73^\circ, 107^\circ, 73^\circ, 107^\circ$ (B). A is false (not all 73°). D is technically true but already covered in B.
- 22) **Choice D is correct.** (7.RP.3) Percent discount = $\frac{50}{200} \times 100 = 25\%$.
- 23) **Choice D is correct.** (7.NS.1b) Position = $-15 + 8 = -7$. She is still 7 feet below sea level (represented as -7).
- 24) **The correct answer is 113.04.** (7.G.4-7.G.6) Full circle: $A = 3.14 \times 12^2 = 3.14 \times 144 = 452.16$ ft². Quarter: $\frac{452.16}{4} = 113.04$ ft².
- 25) **Choice A is correct.** (7.EE.1-7.EE.2) Factor out the negative GCF: $-4x - 12 = -4(x + 3)$. Check: $-4(x + 3) = -4x - 12$.
- 26) **Choice C is correct.** (7.SP.1-7.SP.4) 50% of 5000 = $0.50 \times 5000 = 2500$ MW.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{3/4}{5} = \frac{3}{4} \times \frac{1}{5} = \frac{3}{20} = 0.15$ dollars per eraser.
- 28) **Choice C is correct.** (7.RP.3) Set up $\frac{18}{100} = \frac{36}{x}$. Cross-multiply: $18x = 3600$, so $x = 200$.
- 29) **Choice B is correct.** (7.NS.2d) $0.6 = \frac{6}{10}$. Find GCD(6, 10) = 2. Divide both: $\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$. B is simplest form.



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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 6 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 **6** 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:

6 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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