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Minnesota MCA III

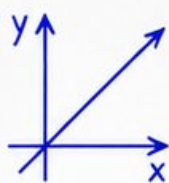
GRADE

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



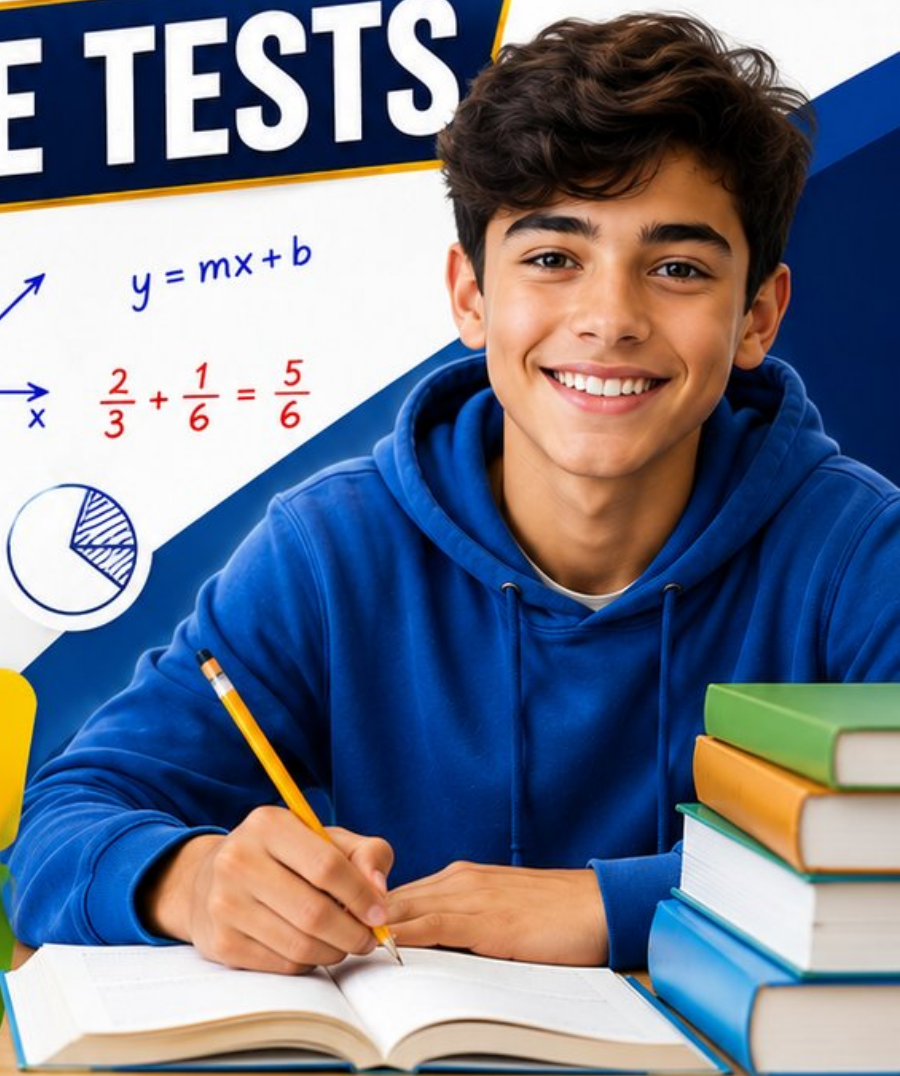
Strengthen
Math Skills



Detailed Answers
& Explanations

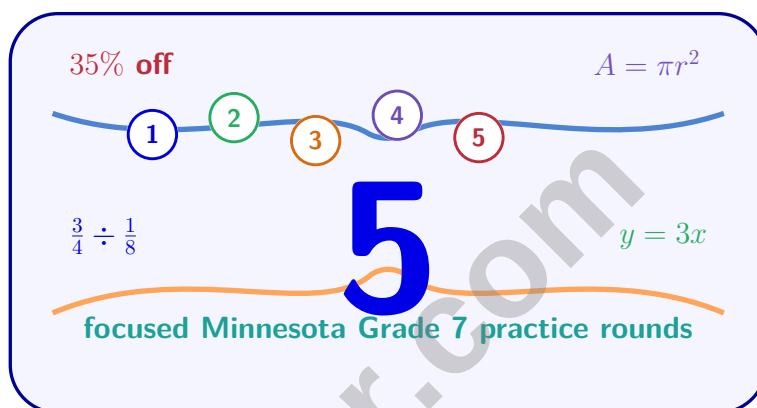


Improve Test
Performance



5 Minnesota MCA III Grade 7 Math Practice Tests

Grade 7 Review Practice with Standards, Keys, and Clear Explanations



Five 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!

Five focused rounds for sharper MCA III math thinking

This book gives you five 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 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.

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?

Five MCA III 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.



Scan me!
For more practice
& answers

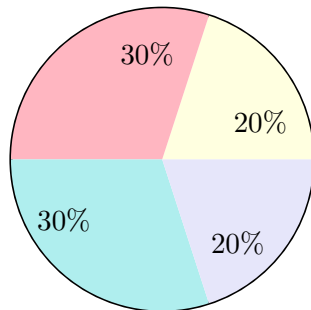
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- 1) A coin has circumference 6.28 cm. Using $\pi \approx 3.14$, what is its radius?
- ☐ A. 1 cm ☐ C. 3 cm
☐ B. 2 cm ☐ D. 4 cm
- 2) An investor earns \$450 in simple interest from a \$3000 investment over 3 years. What is the annual interest rate?
- ☐ A. 4% ☐ C. 6%
☐ B. 7% ☐ D. 5%
- 3) Which expression equals -3 ?
- ☐ A. $5 - (-2)$ ☐ C. $-1 - 4$
☐ B. $-6 - 3$ ☐ D. $2 - 5$
- 4) A book is marked down by 30% from its original price of \$25. What is the discount amount?
- ☐ A. \$22.50 ☐ C. \$15
☐ B. \$17.50 ☐ D. \$7.50
- 5) A plane descends 2000 feet from its cruising altitude of 35000 feet. What is its new altitude? (Model as -2000 for descent.)
- ☐ A. 37000 feet ☐ C. -33000 feet
☐ B. 70000 feet ☐ D. 33000 feet



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6)

The circle graph shows time allocation in a student's weekly schedule. Yellow is schoolwork (20%), pink is sports (30%), turquoise is study (30%), and lavender is free time (20%). If there are 168 hours in a week, how many are spent on sports?

☐ A. 30.4

☐ C. 50.4

☐ B. 33.6

☐ D. 67.2

7) A lemonade stand charges \$0.75 per cup. What is the constant of proportionality for revenue per cup?

8) A painter completes $\frac{2}{3}$ of a room in $\frac{1}{5}$ hour. At this rate, how many rooms will the painter complete in 1 hour?

☐ A. $\frac{2}{15}$ room

☐ C. 1 room

☐ B. $\frac{3}{5}$ room

☐ D. $\frac{10}{3}$ rooms


- 9) A stock loses value at \$2.25 per share each week. After 8 weeks, what is the total loss?
- ☐ A. -\$18 ☐ C. \$10.25
☐ B. -\$10.25 ☐ D. \$18
- 10) A rock climber descends 45 meters down a cliff, then climbs up 28 meters. What is her net change in elevation?
- ☐ A. -17 m ☐ C. -73 m
☐ B. 17 m ☐ D. -28 m
- 11) In a blueprint, a scale of 1 inch = 10 feet is used. A room on the blueprint is 2.5 inches by 3 inches. What are the actual dimensions?
- ☐ A. 2.5 ft by 3 ft ☐ C. 25 ft by 30 ft
☐ B. 20 ft by 30 ft ☐ D. 50 ft by 60 ft
- 12) Which pair of points could NOT lie on a proportional graph through the origin?
- ☐ A. (0, 0) and (2, 10) ☐ C. (2, 4) and (4, 8)
☐ B. (1, 7) and (2, 14) ☐ D. (3, 6) and (5, 11)

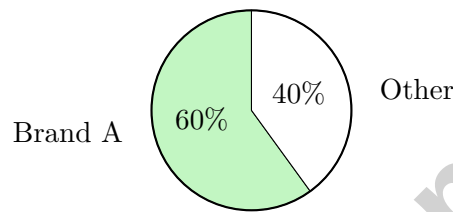


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1) A survey question asks: “Wouldn’t you prefer our tasty new product over the bland old version?” What is the primary error in this question?

- ☐ A. The sample size is too small ☐ C. It is too long
☐ B. It uses loaded language that suggests an answer ☐ D. It does not apply to the population

Sample Survey (250 Customers)



2)

A sample survey found that 60% of 250 customers prefer brand A. If the company has 10000 customers, how many are estimated to prefer brand A?

- ☐ A. 5000 ☐ C. 7000
☐ B. 6000 ☐ D. 8000

3) A student earned 78 points out of 120 points on a quiz. What percent is this?

- ☐ A. 58% ☐ C. 65%
☐ B. 62% ☐ D. 70%

4) A proportional relationship has the equation $y = kx$. If the point (9, 12) lies on the line, what is the value of k ?

- ☐ A. $k = \frac{3}{4}$ ☐ C. $k = 3$
☐ B. $k = \frac{9}{12}$ ☐ D. $k = \frac{4}{3}$



5)

Simulated Roll	1	2	3	4
Frequency	48	52	45	55

A spinner with 4 equal sections is spun 200 times to estimate probabilities. Which two sections have relative frequencies closest to the theoretical probability of 0.25?

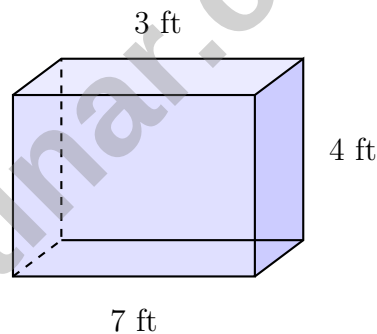
☐ A. Sections 1 and 2

☐ C. Sections 1 and 3

☐ B. Sections 2 and 4

☐ D. Sections 3 and 4

6) Simplify $6p^2 + 2p - 3p^2 - 5p + 4p^2$, then evaluate when $p = 2$.



7)

This isometric view shows a rectangular prism with dimensions $7\text{ ft} \times 4\text{ ft} \times 3\text{ ft}$. Calculate the surface area.

☐ A. 98 ft^2
☐ C. 166 ft^2
☐ B. 122 ft^2
☐ D. 336 ft^2


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1) A clothing store has a rack with 50 items. The sign says “60% off summer collection.” How many items are in the summer collection?

☐ A. 20 items

☐ C. 40 items

☐ B. 60 items

☐ D. 30 items

2) Solve: $-2x + 6 = 18$ and check that a negative answer is reasonable.

☐ A. $x = -6$

☐ C. $x = 4$

☐ B. $x = -4$

☐ D. $x = 6$

3) Solve: $2x + 7 \geq -1$

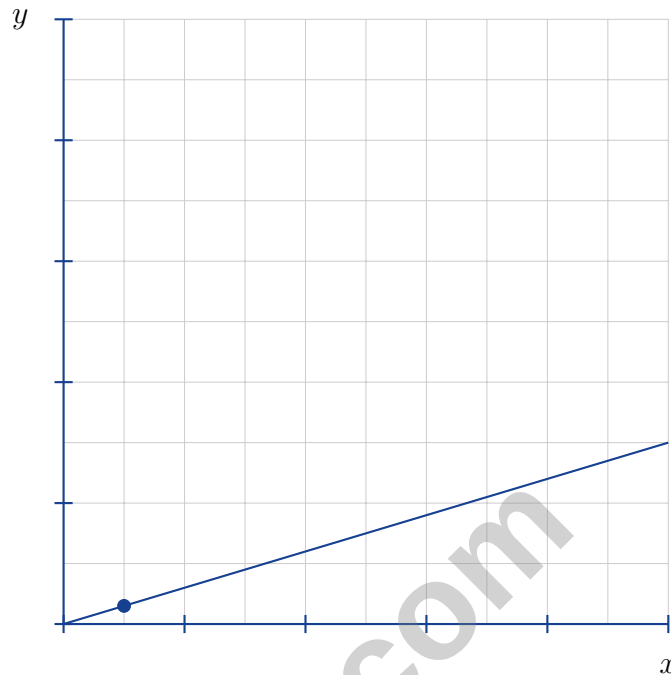
☐ A. $x \geq -4$

☐ C. $x \leq -4$

☐ B. $x \geq 3$

☐ D. $x > -4$





4)

Based on this graph of a proportional relationship, which statement is true?

- ☐ A. The line does not pass through the origin.
- ☐ B. When $x = 10$, $y = 5$.
- ☐ C. The equation is $y = 0.5x$.
- ☐ D. The unit rate is 0.3.

5) What is $1.5 + 2.3$?

- ☐ A. 3.2
- ☐ B. 3.7
- ☐ C. 3.8
- ☐ D. 4.0



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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 A is correct.** (7.G.4-7.G.6) $C = 2\pi r \Rightarrow 6.28 = 2 \times 3.14 \times r \Rightarrow 6.28 = 6.28r \Rightarrow r = 1$ cm.
- 2) **Choice D is correct.** (7.RP.3) $450 = 3000 \times r \times 3 \Rightarrow 450 = 9000r \Rightarrow r = 0.05 = 5\%$.
- 3) **Choice D is correct.** (7.NS.1-7.NS.3) $2 - 5 = 2 + (-5) = -3$. Check: A = 7, B = -3, C = -5, D = -9.
- 4) **Choice D is correct.** (7.RP.3) Discount amount = $0.30 \times 25 = \$7.50$.
- 5) **Choice D is correct.** (7.NS.1b) New altitude = $35000 + (-2000) = 33000$ feet. The plane's altitude decreased by 2000 feet.
- 6) **Choice C is correct.** (7.SP.1-7.SP.4) 30% of 168 = $0.30 \times 168 = 50.4$ hours.
- 7) **The correct answer is 0.75.** (7.RP.1-7.RP.3) Revenue is price per cup times cups sold, so the constant is 0.75.
- 8) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{2/3}{1/5} = \frac{2}{3} \times 5 = \frac{10}{3}$ rooms per hour.
- 9) **Choice A is correct.** (7.NS.1-7.NS.3) Loss: $-2.25 \times 8 = -18$ dollars.
- 10) **Choice A is correct.** (7.NS.1-7.NS.3) Net change = $-45 + 28 = -17$ m (17 meters lower than start).
- 11) **Choice C is correct.** (7.G.1-7.G.5) 2.5 inches $\times 10 = 25$ feet; 3 inches $\times 10 = 30$ feet.
- 12) **Choice D is correct.** (7.RP.1-7.RP.3) For a line through the origin with form $y = kx$: (3, 6) gives $k = 6/3 = 2$. Check (5, 11): $k = 11/5 = 2.2 \neq 2$. The constant of proportionality does not match, so this pair cannot both lie on the same proportional line through the origin.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) The unit-rate point (1, 0.45) indicates approximately 0.45 kg per pound.
- 14) **Choice D is correct.** (7.RP.3) Set up the proportion: $\frac{1}{20} = \frac{p}{100}$. Cross-multiply: $p = 5$, so $\frac{1}{20} = 0.05 = 5\%$.
- 15) **Choice D is correct.** (7.RP.3) Account 1: $\$1,500 \times 0.04 = \60 . Account 2: $\$1,500 \times 0.06 = \90 . A higher interest rate (6% vs. 4%) always yields more interest on the same principal over the same time period, illustrating the investment trade-off: higher rates = higher returns.
- 16) **Choice C is correct.** (7.NS.1-7.NS.3) $500 + 250 - 80 = 750 - 80 = 670$ m.
- 17) **The correct answer is 20.** (7.RP.1-7.RP.3) If 2.5 cm = 50 km, then 1 cm = $50 \div 2.5 = 20$ km.
- 18) **The correct answer is 33.3%.** (7.RP.3) $\frac{1}{3} = 0.333 \dots = 33.\bar{3}\%$. Approximately 33% of the students attend the science club.
- 19) **Choice B is correct.** (7.NS.1-7.NS.3) Using multiplication as the inverse: $a = 4 \times (-3) = -12$.
- 20) **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).
- 21) **Choice A is correct.** (7.NS.2d) Divide $5 \div 16 = 0.3125$. Since $16 = 2^4$, this is a terminating decimal.
- 22) **Choice B is correct.** (7.NS.1-7.NS.3) $7 \times 7 = 49$, so $\sqrt{49} = 7$.
- 23) **Choice C is correct.** (7.NS.1-7.NS.3) $1.04 \times 10^6 = 1.04 \times 1,000,000 = 1,040,000$.
- 24) **Choice A is correct.** (7.NS.2) After 1 hour: $16 \times 0.5 = 8$ bacteria. After 2 hours: $8 \times 0.5 = 4$ bacteria. Multiplying by a decimal less than 1 decreases the quantity (scaling).
- 25) **The correct answer is 12%.** (7.RP.3) Percent error = $\frac{|110-125|}{125} \times 100\% = \frac{15}{125} \times 100\% = 12\%$.
- 26) **Choice B is correct.** (7.SP.5-7.SP.8) Total beads: $12 + 8 + 5 = 25$. Blue beads: 8. So $P(\text{blue}) = \frac{8}{25} = 0.32$.
- 27) **Choice A is correct.** (7.SP.3) Gym Alpha's concentration at 20–35 shows it serves a targeted young adult demographic well. Gym Beta's even distribution shows it serves all age groups without targeting a specific age.
- 28) **Choice D is correct.** (7.RP.3) Total cost = $500 + (75 \times 20) = 500 + 1500 = \$2,000$.
- 29) **Choice D is correct.** (7.RP.3) The compound interest formula is $A = P(1 + r)^t$. Here, $P = 750$ (principal) and $r = 0.06$ (rate as decimal). So $A = 750(1 + 0.06)^t = 750(1.06)^t$.
- 30) **Choice B is correct.** (7.G.4-7.G.6) Decompose the house shape into a rectangle and a triangular roof. Rectangle: $10 \times 5 = 50$ sq units. Triangle: $\frac{1}{2} \times 6 \times 3 = 9$ sq units. Add: $50 + 9 = 59$ sq units.
- 31) **Choice C is correct.** (7.RP.1-7.RP.3) Set up: $\frac{25}{100} = \frac{18}{x}$. Cross multiply: $25x = 1800$, so $x = 72$.



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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 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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