

10

Minnesota MCA III

GRADE
7
MATH

PRACTICE TESTS

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



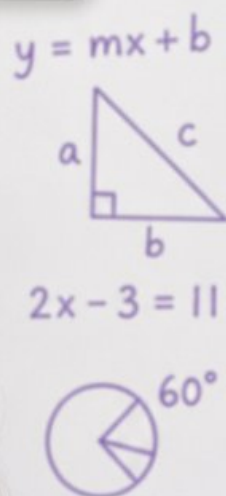
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step
solutions



FOCUSED & EFFECTIVE

Target key math skills
with purposeful practice



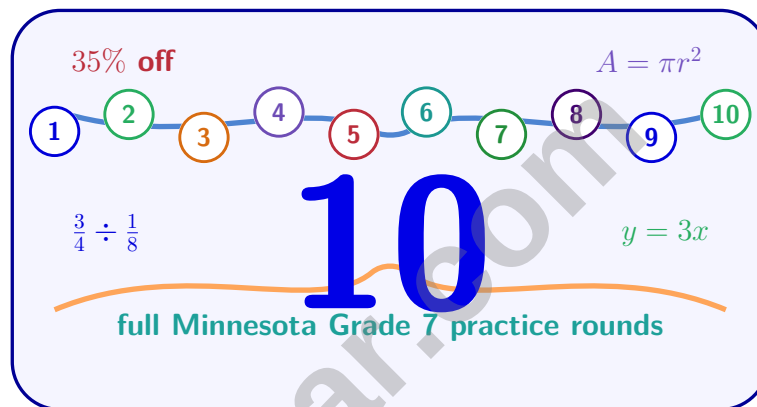
10 PRINTED TESTS
+2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 Minnesota MCA III Grade 7 Math Practice Tests

Minnesota Grade 7 MCA III Practice for steady practice through rational numbers, proportional models, equations, geometry, data, and probability



Ten 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!

Ten focused rounds for sharper Minnesota MCA III math thinking

This book gives you ten 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 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.

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?

Ten Minnesota MCA III 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 Minnesota 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.



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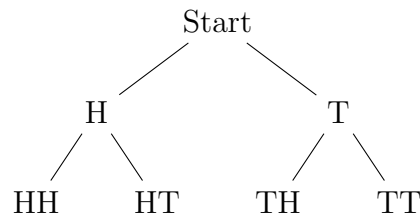
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- 1) A fitness center charges a \$30 enrollment fee and \$45 per month. What is the total cost for 6 months of membership?
- ☐ A. \$240 ☐ C. \$300
☐ B. \$270 ☐ D. \$330
- 2) If the equation $\frac{3x}{4} - 1 = 5$ is solved, what is the first operation to perform?
- ☐ A. Divide by 3 ☐ C. Add 1
☐ B. Multiply by 4 ☐ D. Subtract 4
- 3) A square tile has an area of 169 square inches. What is the side length of the tile?
- ☐ A. 11 inches ☐ C. 13 inches
☐ B. 12 inches ☐ D. 14 inches
- 4) A student claims that $x + x + x + 5 = 3x + 5$ and $x(3 + 5) = 3x + 5$. Which statement is true?
- ☐ A. Both claims are correct ☐ C. Only the second claim is correct
☐ B. Only the first claim is correct ☐ D. Neither claim is correct
- 5) A box contains 15 pens: 6 red, 4 blue, 3 black, and 2 green. A pen is selected at random. What is the probability of selecting a red or green pen?
- ☐ A. $\frac{6}{15}$ ☐ C. $\frac{4}{15}$
☐ B. $\frac{8}{15}$ ☐ D. $\frac{7}{15}$



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6) Two coins are flipped. Which tree diagram shows all possible outcomes?



☐ A. 2 outcomes only

☐ C. 4 outcomes

☐ B. 3 outcomes

☐ D. 8 outcomes

7) A number cube is rolled and a coin is flipped. What is $P(\text{rolling a 4 and flipping tails})$?

☐ A. $\frac{1}{12}$

☐ C. $\frac{1}{6}$

☐ B. $\frac{1}{8}$

☐ D. $\frac{7}{12}$

8) A quality control test found that out of 750 items produced, 12 were defective. What is the experimental probability that an item is defective?

☐ A. $\frac{12}{750}$

☐ C. 0.12

☐ B. $\frac{3}{125}$

☐ D. $\frac{1}{12}$

9) Alex says, "The probability of rolling a 7 on a standard die is 0.1 (unlikely)." What is wrong with Alex's statement?

☐ A. Rolling a 7 is impossible, not unlikely; the probability is 0

☐ C. Alex should have said the probability is 0.5

☐ B. Probability cannot be expressed as a decimal

☐ D. There is nothing wrong; 0.1 is correct



- 10) A student predicted she would solve 28 math problems correctly, but she actually solved 32 correctly. What is the percent error in her prediction?

☐ A. 14.3% ☐ C. 4%
☐ B. 87.5% ☐ D. 12.5%

- 11) A ceiling fan needs to be painted. The fan blades form a shape: a central square (6 inches by 6 inches) with four rectangles attached (each 2 inches by 8 inches). What is the total area to be painted in square inches?



- 12) Expand: $9(w - 4)$

☐ A. $9w - 36$ ☐ C. $w - 36$
☐ B. $9w - 4$ ☐ D. $9w + 36$

- 13) Evaluate: $10 - (-5)$

☐ A. 5 ☐ C. -5
☐ B. -15 ☐ D. 15

- 14) A blueprint has a scale of 1 inch : 8 feet. A room on the blueprint is 3 inches by 2.5 inches. What are the actual dimensions?

☐ A. 9 feet $\times$ 8 feet ☐ C. 11 feet $\times$ 10.5 feet
☐ B. 3 feet $\times$ 2.5 feet ☐ D. 24 feet $\times$ 20 feet



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- 1) A freezer temperature drops from 0°C to -30°C over 10 hours. What is the average temperature drop per hour?

☐ A. 30°C per hour
☐ B. -3°C per hour
☐ C. 3°C per hour
☐ D. -30°C per hour

- 2) A back-to-back stem-and-leaf plot shows January and July temperatures. If stem 7 appears for both months with January leaves 1, 4, 8 and July leaves 3, 5, 7, 9, which month has greater variation within stem 7?

☐ A. January (greater spread)
☐ B. July (greater spread)
☐ C. Both have equal spread
☐ D. Cannot determine from stem alone

- 3) A savings account earns simple interest at 4.5% per year. If you deposit \$600 today, how much interest will you earn after 3 years?

- 4) A rectangular piece of fabric ($25\text{ inches} \times 16\text{ inches}$) has two identical right triangles ($5\text{ inches} \times 4\text{ inches}$) removed from opposite corners. What is the remaining area?

☐ A. 360 in^2
☐ B. 380 in^2
☐ C. 400 in^2
☐ D. 420 in^2

- 5) An investment account earns 7% simple interest per year. If someone invests \$3,000, how much interest will they earn after 3 years?



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6) A rectangular prism has length $\frac{1}{2}$ m, width $\frac{1}{3}$ m, and height 2 m. What is the volume?

☐ A. 1 m^3

☐ B. $\frac{2}{3} \text{ m}^3$

☐ C. $\frac{1}{3} \text{ m}^3$

☐ D. $\frac{1}{6} \text{ m}^3$

7) Expand: $-1(2x - 8)$

☐ A. $-2x - 8$

☐ B. $2x - 8$

☐ C. $-2x + 8$

☐ D. $2x + 8$

Combining Terms: $5a + 2b - 3a + 4b$

Like terms with a :

$$5a \text{ and } -3a \rightarrow (5 - 3)a = 2a$$

Like terms with b :

$$2b \text{ and } 4b \rightarrow (2 + 4)b = 6b$$

Answer: $2a + 6b$

8)

Using the strategy shown above, simplify $8x + 3y - 5x - 2y$.

☐ A. $13x + y$

☐ B. $3x + y$

☐ C. $3x + 5y$

☐ D. $11xy$

9) A survey shows that in a group of 240 people, 22% prefer tea over coffee. How many people prefer tea?

☐ A. 22

☐ B. 48

☐ C. 52.8

☐ D. 66



- 1) A scale drawing of a rectangular parking lot uses scale 1 cm : 3 m. The drawing shows a length of 5 cm. An error occurs and the scale is mistakenly read as 1 cm : 5 m. What incorrect length would someone calculate for the actual parking lot using the wrong scale?
- ☐ A. 15 m ☐ C. 25 m
☐ B. 20 m ☐ D. 8 m
- 2) A university surveyed 3200 students about their housing. The circle graph shows 23% live off-campus. How many students live off-campus?
- ☐ A. 230 ☐ C. 736
☐ B. 640 ☐ D. 2464
- 3) Which expression is equivalent to $\frac{k^7}{k^7}$?
- ☐ A. 0 ☐ C. 1
☐ B. k ☐ D. k^{14}
- 4) A vehicle inspection charges a flat fee of \$45 and \$12 per system checked. If the total is \$93, which equation finds s , the number of systems?
- ☐ A. $45s + 12 = 93$ ☐ C. $12 + 45s = 93$
☐ B. $12s + 45 = 93$ ☐ D. $45(s + 12) = 93$
- 5) What is x if $3(x - 2) = 9$?
- ☐ A. $x = 2$ ☐ C. $x = 5$
☐ B. $x = 3$ ☐ D. $x = 6$



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6) Identify the error in this solution:

$$3(2x - 1) = 15$$

$$6x - 1 = 15$$

$$6x = 16$$

$$x = \frac{16}{6} = \frac{8}{3}$$

- ☐ A. Did not distribute the 3 to the -1 ☐ C. Did not divide both sides by 6
☐ B. Did not simplify the fraction ☐ D. The solution is correct correctly

7) Solve: $2x + 8 = 24$

- ☐ A. $x = 6$ ☐ C. $x = 10$
☐ B. $x = 8$ ☐ D. $x = 12$

8) A model airplane has a scale of 1 in : 8 ft. The model is 12 inches long. How long is the actual airplane?

- ☐ A. 48 ft ☐ C. 96 ft
☐ B. 64 ft ☐ D. 108 ft

9) A cylinder with radius 2 cm and height 8 cm is cut by a plane that makes a 45° angle with the base. What is the shape of the cross-section?

- ☐ A. Circle ☐ C. Ellipse
☐ B. Rectangle ☐ D. Triangle



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 C is correct.** (7.RP.3) Total cost = $30 + (45 \times 6) = 30 + 270 = \300 .
- 2) **Choice C is correct.** (7.EE.3-7.EE.4) First, undo the subtraction by adding 1 to both sides to isolate the fraction $\frac{3x}{4}$.
- 3) **Choice C is correct.** (7.NS.1-7.NS.3) Since area = s^2 and $169 = 13^2$, the side length is $\sqrt{169} = 13$ inches.
- 4) **Choice B is correct.** (7.EE.1-7.EE.2) The first: $x + x + x + 5 = 3x + 5$ is correct. The second is wrong: $x(3 + 5) = 8x \neq 3x + 5$. The 5 must be distributed separately: $x(3) + 5 \neq x(3 + 5)$.
- 5) **Choice B is correct.** (7.SP.5-7.SP.8) Red or green = $6 + 2 = 8$. $P(\text{red or green}) = \frac{8}{15}$.
- 6) **Choice C is correct.** (7.SP.5-7.SP.8) The tree shows all branches: HH, HT, TH, TT. That is 4 equally likely outcomes.
- 7) **Choice A is correct.** (7.SP.5-7.SP.8) $P(4 \text{ and tails}) = \frac{1}{6} \cdot \frac{1}{2} = \frac{1}{12}$.
- 8) **Choice A is correct.** (7.SP.6) Experimental probability of defect = $\frac{12}{750}$. This simplifies to $\frac{2}{125} = 0.016$. Option A is the most direct answer from the data.
- 9) **Choice A is correct.** (7.SP.5-7.SP.8) A standard die has faces 1–6 only. Rolling a 7 is impossible, not merely unlikely. Probability = 0, not 0.1.
- 10) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|28-32|}{32} \times 100\% = \frac{4}{32} \times 100\% = 12.5\%$.
- 11) **The correct answer is 100.** (7.G.4-7.G.6) Central square: $6 \times 6 = 36 \text{ in}^2$. Four rectangles: $4 \times (2 \times 8) = 64 \text{ in}^2$. Total: $36 + 64 = 100 \text{ in}^2$.
- 12) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute 9: $9(w) - 9(4) = 9w - 36$.
- 13) **Choice D is correct.** (7.NS.1-7.NS.3) $10 - (-5) = 10 + 5 = 15$. Always convert subtraction of a negative to addition.
- 14) **Choice D is correct.** (7.RP.1-7.RP.3) Multiply each dimension by the scale factor: $3 \times 8 = 24$ feet and $2.5 \times 8 = 20$ feet.
- 15) **Choice C is correct.** (7.RP.3) If $45 = 0.50 \times n$, then $n = \frac{45}{0.50} = 90$.
- 16) **Choice D is correct.** (7.RP.3) Markup = $0.60 \times 500 = \$300$. Selling price = $500 + 300 = \$800$.
- 17) **The correct answer is 20.** (7.G.4-7.G.6) $V = \pi r^2 h \Rightarrow 565.2 = 3.14 \times 9 \times h \Rightarrow 565.2 = 28.26h \Rightarrow h = 20$ feet.
- 18) **Choice C is correct.** (7.RP.3) Interest earned: $I = 50000 \times 0.032 \times 10 = \$16,000$. Total value: $A = P + I = 50000 + 16000 = \$66,000$.
- 19) **Choice D is correct.** (7.NS.1b) Check each: A: $-5 + 3 = -2$, not 8. B: $-5 + 3 = -2$ ✓. C: $4 + (-9) = -5$, not 5. D: $-12 + 20 = 8$, not -8 .
- 20) **The correct answer is A,D.** (7.G.4-7.G.6) Choice A gives the correct formula. Choice D is verified: $3.14 \times 5^2 = 78.5 \text{ cm}^2$. B confuses formula with circumference. C forgets that area scales with the square of the radius. E mistakes semicircle (half) for one-third.
- 21) **Choice A is correct.** (7.EE.1) Combine coefficients: $(12 - 7 + 3)x = 8x$.
- 22) **Choice C is correct.** (7.SP.1-7.SP.4) 19% of 1200 = $0.19 \times 1200 = 228$ items.
- 23) **Choice D is correct.** (7.EE.1-7.EE.2) Substitute: $\frac{3(8)}{4} + 1 = \frac{24}{4} + 1 = 6 + 1 = 7$.
- 24) **Choice A is correct.** (7.EE.1-7.EE.2) Expand: $-4(2m + 3) = -4(2m) + (-4)(3) = -8m - 12$. Correct.
- 25) **Choice C is correct.** (7.EE.4b) $x \leq 2$ includes 2 (filled circle) and all values less than 2 (arrow left).
- 26) **Choice D is correct.** (7.RP.1-7.RP.3) The unit-rate marker at (1, 0.25) shows the rate is 0.25.
- 27) **Choice D is correct.** (7.RP.3) Simple interest = $P \times r \times t = \$1,000 \times 0.05 \times 1 = \50 .
- 28) **Choice B is correct.** (7.NS.2d) Divide $1 \div 5 = 0.2$. Since the denominator is 5, this is a terminating decimal.
- 29) **Choice A is correct.** (7.NS.1-7.NS.3) Total change: $-3.20 \times 5 = -16$ dollars.
- 30) **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.
- 31) **Choice D is correct.** (7.NS.1-7.NS.3) $5.0 \times 10^3 = 5,000$. Check: $0.05 \times 10^3 = 0.05 \times 1,000 = 50 \neq 5,000$.
- 32) **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.



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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.



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