

7 Minnesota MCA III Grade 7 Math Practice Tests



7 PRINTED TESTS + 2 ONLINE TESTS

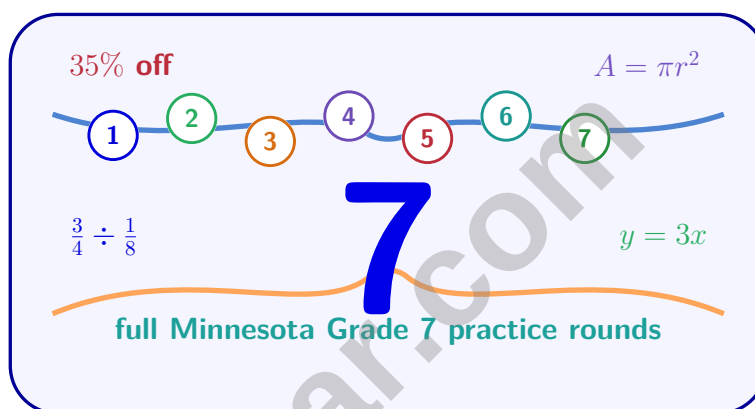


**Standards Aligned Problem Solving
For Comprehensive Assessment Programs**



8 Minnesota MCA III Grade 7 Math Practice Tests

A stronger finish with Minnesota Grade 7 unit rates, percent reasoning, transformations, statistics, and compound events



Eight 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!

Eight focused rounds for sharper MCA III math thinking

This book gives you seven 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

An eight-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?

Eight MCA III tests, 280 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 7–8	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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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- 1) A quality control inspector checked 500 items and found 15 defective. Based on this experimental data, if 8000 items are produced, how many are expected to be defective?

☐ A. 15 ☐ C. 240
☐ B. 120 ☐ D. 485

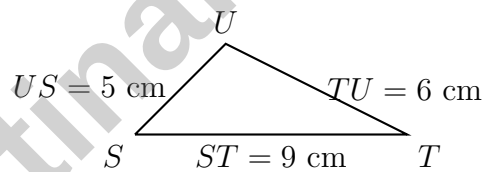
- 2) What is -4×0.25 ?

☐ A. -2 ☐ C. 1
☐ B. -1 ☐ D. 4.25

- 3) A restaurant charges a 2.5% service fee in addition to the bill. If a diner's meal costs \$80, what is the service fee?

☐ A. \$20.00 ☐ C. \$8.00
☐ B. \$2.50 ☐ D. \$2.00

4)



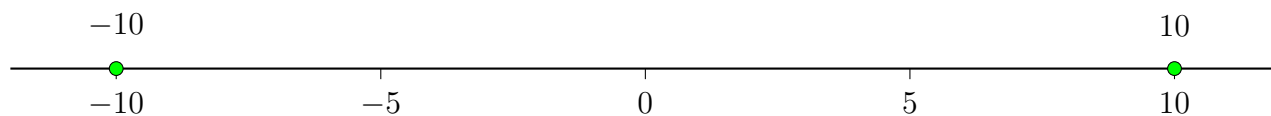
Triangle STU has sides $ST = 9$, $TU = 6$, $US = 5$ cm. Which type is it?

☐ A. Acute ☐ C. Obtuse
☐ B. Right ☐ D. Impossible



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- 5) On a number line, which point represents a number whose absolute value is 10?



- ☐ A. Only 10 ☐ C. Both 10 and -10
☐ B. Only -10 ☐ D. Only 0
- 6) Identify which term is not a like term with $3x$.
- ☐ A. $7x$ ☐ C. x
☐ B. $-2x$ ☐ D. $3x^2$
- 7) A proportional relationship has an equation $y = 2.2x$. What is the value of y when $x = 5$?

- 8) A coin is flipped twice to simulate a compound event. How many outcomes involve “at least one heads”?
- ☐ A. 1 ☐ C. 3
☐ B. 2 ☐ D. 4



9) A student solved: "Start with -10 , add 6 , then add -3 ." The student got -19 . What error did they make?

- ☐ A. Subtracted instead of adding ☐ C. Forgot to add the middle step
☐ B. Added all three numbers' absolute values ☐ D. Only computed $-10 + (-3)$ and ignored the 6

10) Identify the correct factorization of $-9m - 12$:

- ☐ A. $-3(3m + 4)$ ☐ C. $-3(3m - 4)$
☐ B. $3(-3m - 4)$ ☐ D. $9(-m - 1.33)$

11) A bicycle costs \$140 before tax. If the sales tax is 9%, and then a 15% discount coupon is applied to the pre-tax price, what is the final cost?

12) Solve: $-3x + 5 \geq -10$

- ☐ A. $x \leq 5$ ☐ C. $x < -5$
☐ B. $x \geq 5$ ☐ D. $x \leq -5$



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1) Solve for x : $7(x + 1) = 49$

☐ A. $x = 5$

☐ C. $x = 7$

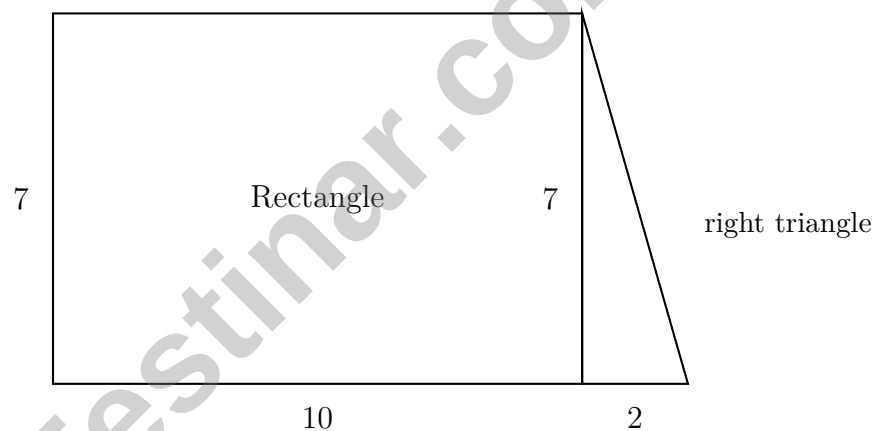
☐ B. $x = 6$

☐ D. $x = 8$

2) Two box plots compare monthly rainfall (in inches) for Region A and Region B. Region A: IQR (Interquartile Range) = 3 inches; Region B: IQR = 8 inches. What does this comparison reveal?

- ☐ A. Region A has more variable rainfall
☐ B. Region B has a wider middle 50% of data (more variability in the middle)

- ☐ C. Both regions have identical rainfall patterns
☐ D. Region A receives more total rain annually



3)

A side view of a building shows a rectangle (10 units $\times$ 7 units) with a right triangle (legs 2 units and 7 units) on the right. What is the total area?

☐ A. 63 sq units

☐ C. 77 sq units

☐ B. 70 sq units

☐ D. 147 sq units



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4) A rectangular prism has dimensions 2.5 m, 4 m, and 8 m. What is its volume?

☐ A. 14.5 m^3
☐ C. 100 m^3
☐ B. 80 m^3
☐ D. 20 m^3

5) Can a triangle be drawn with side lengths 2.5 cm, 3.5 cm, and 6 cm?

☐ A. Yes

☐ C. No, because $2.5 + 3.5 = 6$
☐ B. No, because $2.5 + 3.5 < 6$
☐ D. Yes, but only one

6) A student claims: "An arc is the same as a chord." Is this correct?

☐ A. Yes, they are the same

☐ C. Yes, but only if the arc is very small

☐ B. No; an arc is a curved part of the circle, while a chord is a straight line segment

☐ D. No; a chord is always longer than an arc

7) The table below shows a savings account with \$400 earning 5% annual compound interest:

Year	Interest Earned	Balance
0	—	\$400
1	\$20	\$420
2	?	?
3	\$23.10	\$506.25

What is the balance at the end of year 2?

☐ A. \$440

☐ C. \$442

☐ B. \$450

☐ D. \$441


1) A stem-and-leaf plot has stems 5, 6, 7 with leaves:

- Stem 5: 1, 4, 7
- Stem 6: 0, 3, 8
- Stem 7: 2, 6, 9

What is the range of the data?

- ☐ A. 24 ☐ C. 26
- ☐ B. 25 ☐ D. 27

2) A juice stand sells drinks at a proportional rate. When 5 drinks are sold, the revenue is \$30. Write the equation for revenue r in terms of drinks d .

- ☐ A. $r = 5d$ ☐ C. $r = 30d$
- ☐ B. $r = \frac{d}{6}$ ☐ D. $r = 6d$

3) If 52% of a school's 650 students are girls, which is the most efficient method to find the number of girls?

- ☐ A. Divide 650 by 52 ☐ C. Add $52 + 650$ and take $\frac{1}{2}$
- ☐ B. Use a proportion: $\frac{52}{100} = \frac{x}{650}$ and cross-multiply ☐ D. Convert 52% to a decimal and multiply: 0.52×650

4) A book costs \$15. After a 40% price increase, what is the new cost?

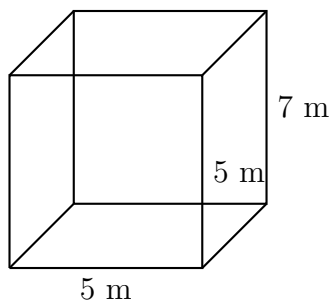
- ☐ A. \$6 ☐ C. \$21
- ☐ B. \$9 ☐ D. \$25

5) Which inequality represents "the difference of a number and 5 is greater than 8"?

- ☐ A. $5 - x > 8$ ☐ C. $x - 5 < 8$
- ☐ B. $x - 5 > 8$ ☐ D. $x + 5 > 8$



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6)

The net shown represents a rectangular prism. What is the surface area of the prism?

☐ A. 70 m^2 ☐ C. 190 m^2 ☐ B. 140 m^2 ☐ D. 350 m^2

- 7) A store buys a shirt for c dollars and marks it up by 50%. What is the selling price if $c = 16$?

- 8) A clothing store manager wants to find out which style of jeans is most popular among teenagers in her city. If she only surveys customers who shop at her store on Saturday afternoons, what type of bias is present?

☐ A. Convenience sampling☐ C. Leading question bias☐ B. Voluntary response bias☐ D. Non-response bias

Minnesota Comprehensive Assessments 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 Comprehensive Assessments practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (7.SP.6) Experimental probability of defect = $\frac{15}{500} = 0.03$. Expected defects in 8000: $0.03 \times 8000 = 240$.
- 2) **Choice B is correct.** (7.NS.2) $-4 \times 0.25 = -1$. Since $0.25 = \frac{1}{4}$, we have $-4 \times \frac{1}{4} = -1$.
- 3) **Choice D is correct.** (7.RP.3) Service fee = $0.025 \times 80 = \$2.00$.
- 4) **Choice C is correct.** (7.G.1-7.G.5) Check the longest side: $9^2 = 81$ vs. $6^2 + 5^2 = 36 + 25 = 61$. Since $81 > 61$, the square of the longest side exceeds the sum of squares of the other two. The angle opposite the longest side is obtuse.
- 5) **Choice C is correct.** (7.NS.1-7.NS.3) Two points on a number line have absolute value 10: the point 10 (ten units right of zero) and -10 (ten units left of zero).
- 6) **Choice D is correct.** (7.EE.1) $3x^2$ has exponent 2, while $3x$ has exponent 1. They are not like terms.
- 7) **The correct answer is 11.** (7.RP.1-7.RP.3) $y = 2.2 \times 5 = 11$.
- 8) **Choice C is correct.** (7.SP.5-7.SP.8) Sample space: HH, HT, TH, TT (four equally likely outcomes). Outcomes with at least one heads: HH, HT, TH (three outcomes). So $P(\text{at least one heads}) = \frac{3}{4} = 0.75$.
- 9) **Choice D is correct.** (7.NS.1b) The correct computation is $-10 + 6 + (-3) = -4 + (-3) = -7$. The student's error: they computed $-10 + (-6) + (-3) = -19$, treating the $+6$ as -6 . This shows they misread or misinterpreted the positive six, effectively skipping the correct middle step and replacing it with its opposite sign.
- 10) **Choice A is correct.** (7.EE.1-7.EE.2) Factor out the GCF -3 : $-9m - 12 = -3(3m + 4)$.
- 11) **The correct answer is \$129.71.** (7.RP.3) Apply the 15% discount to get $140(0.85) = 119$. Then add 9% tax: $119(1.09) = 129.71$.
- 12) **Choice A is correct.** (7.EE.4b) Subtract 5: $-3x \geq -15$. Divide by -3 and flip: $x \leq 5$.
- 13) **Choice B is correct.** (7.G.4-7.G.6) $SA = 2(3 \cdot 2 + 3 \cdot 4 + 2 \cdot 4) = 2(6 + 12 + 8) = 2(26) = 52 \text{ in}^2$.
- 14) **The correct answer is 2.** (7.RP.3) $180 = 1500 \times 0.06 \times t \Rightarrow 180 = 90t \Rightarrow t = 2$ years.
- 15) **Choice C is correct.** (7.SP.1-7.SP.4) A sample of 100 students balances accuracy with practicality. Samples of 10 and 25 are too small to reliably represent the whole school; 1000 would give similar accuracy but be costly and time-consuming to conduct.
- 16) **Choice C is correct.** (7.NS.2d) Divide $3 \div 11 = 0.272727 \dots = 0.\overline{27}$. The denominator 11 produces a repeating 2-digit block.
- 17) **The correct answer is 0.08.** (7.RP.3) $900(1+r)^2 = 1059.48 \Rightarrow (1+r)^2 = 1.1772 \Rightarrow 1+r = 1.08 \Rightarrow r = 0.08$.
- 18) **Choice B is correct.** (7.NS.1-7.NS.3) New level: $-3 + 1 = -2$ meters.
- 19) **Choice A is correct.** (7.NS.1-7.NS.3) Two withdrawals: $-\$12.75 - \$12.75 = -\$25.50$. New balance: $\$85.50 - \$25.50 = \$59.00$.
- 20) **The correct answer is A,C.** (7.RP.3) Statements A and C correctly describe the change. The markup is \$15, and the new price is $\frac{65}{50} = 1.30 = 130\%$ of the original. Statement B is false because $\frac{15}{65} \neq \frac{3}{10}$, and D incorrectly suggests a 50% markup.
- 21) **Choice C is correct.** (7.EE.1-7.EE.2) An even exponent makes a negative base positive: $(-3)^2 = (-3) \cdot (-3) = 9$.
- 22) **Choice B is correct.** (7.EE.3-7.EE.4) Add 3: $5y = 25$. Divide by 5: $y = 5$.
- 23) **Choice A is correct.** (7.EE.3-7.EE.4) $5x - 10 + 10 = 40 + 10 \Rightarrow 5x = 50$. Then divide by 5: $x = 10$.
- 24) **Choice A is correct.** (7.G.1-7.G.5) Drawing dimensions: $12 \div 2 = 6$ ft and $8 \div 2 = 4$ ft.
- 25) **Choice D is correct.** (7.G.1-7.G.5) A plane perpendicular to the triangular bases of a prism can produce a triangle (perpendicular to one base face) or a rectangle/quadrilateral (cutting two lateral faces). A hexagon would require intersecting all six faces, which is impossible for this perpendicular orientation.
- 26) **Choice C is correct.** (7.G.1-7.G.5) Scale factor = $\frac{7.5}{5} = 1.5$. Check: $4 \times 1.5 = 6$ ✓
- 27) **Choice D is correct.** (7.G.4-7.G.6) One lap = $C = 2\pi r = 2 \times 3.14 \times 50 = 314$ m. Three laps = $3 \times 314 = 942$ m.
- 28) **Choice C is correct.** (7.G.4-7.G.6) $r = 10$ ft. $A = 3.14 \times 10^2 = 3.14 \times 100 = 314 \text{ ft}^2$.
- 29) **Choice C is correct.** (7.G.4-7.G.6) Total surface area includes two circular bases ($2\pi r^2$) and lateral area ($2\pi rh$), which factors to $2\pi r(r + h)$.



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One Last Encouragement

Hi, Determined Student!

◇ You did meaningful Grade 7 practice. That matters because confidence is built through action, not waiting until everything feels easy. This broad and demanding book gave you seven strong Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Carry this with you: you can learn hard things by breaking them into steps, asking good questions, and reviewing with honesty. ★

Take This With You

- **You Can Start:** Even when the problem looks big.
- **You Can Adjust:** When the first method is not enough.
- **You Can Learn:** From every corrected mistake.
- **You Can Improve:** One practice session at a time.

Grade 7 test-day tip: Walk into test day ready to think, not ready to be perfect. Thinking clearly is the goal.

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

Jay Daie

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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
- ✓ Percents & Decimals
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
- ✓ And More!



PRACTICE
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FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY



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