

7 Montana MAST

Grade 7 Math Practice Tests



7 PRINTED TESTS + 2 ONLINE TESTS

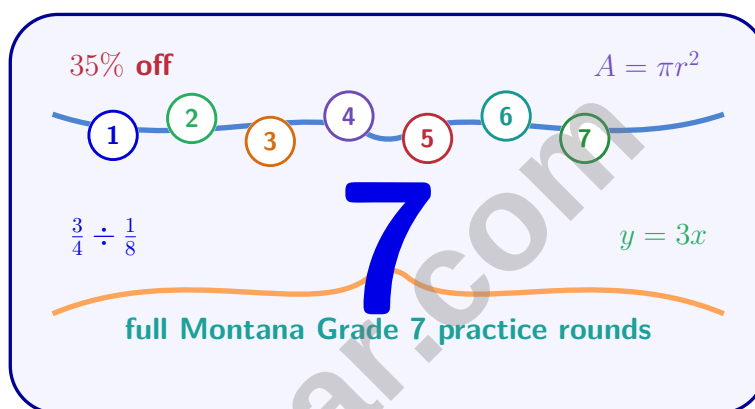


**Standards Aligned Problem Solving
For Comprehensive Assessment Programs**



8 Montana MAST Grade 7 Math Practice Tests

A clean review path for Montana Grade 7 unit-rate reasoning, proportional equations, geometry, statistics, and probability models



Eight complete 40-question Grade 7 MAST 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, Montana Grade 7 Problem Solver!

Eight focused rounds for sharper MAST math thinking

This book gives you seven full Grade 7 MAST 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 Montana 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.

Montana 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 MAST 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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& answers

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- 1) A car travels 120 miles in 2 hours at a constant speed. What is the constant of proportionality (miles per hour)?
- ☐ A. 240 mph ☐ C. 100 mph
☐ B. 90 mph ☐ D. 60 mph
- 2) 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
- 3) What is $2 \times (-3) \times (-2)$?
- ☐ A. -12 ☐ C. 8
☐ B. -8 ☐ D. 12
- 4) A stock broker earns a 0.5% commission on all stock trades. A client makes a trade worth \$8,000. What is the broker’s commission?
- ☐ A. \$4 ☐ C. \$400
☐ B. \$4,000 ☐ D. \$40
- 5) A \$1,000 investment at $r\%$ annual compound interest triples after 2 years. Which equation gives the interest rate?
- ☐ A. $1000(1 + r) = 3000$ ☐ C. $1000 + 2r = 3000$
☐ B. $1000(1 + r)^2 = 3000$ ☐ D. $1000 \times r^2 = 3000$



- 6) Which model correctly shows $5 + (-5) = 0$ using a chip diagram where red = positive and blue = negative?

Model A:



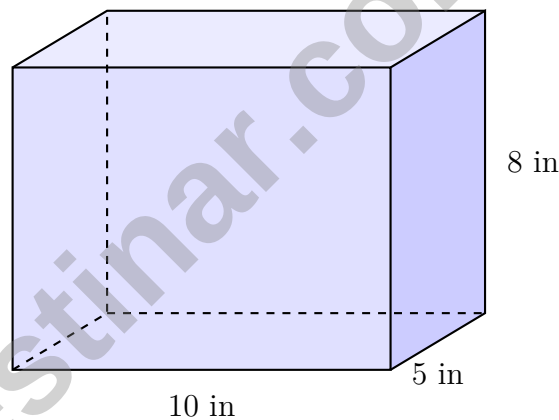
5 red + 2 blue

Model B:



5 red + 5 blue

- ☐ A. Model A
 ☐ C. Neither model
☐ B. Both models show the same thing
 ☐ D. Model B



7)

Which rectangular prism dimensions would give a surface area of exactly 340 square inches?

- ☐ A. 10 in $\times$ 8 in $\times$ 5 in
 ☐ C. 12 in $\times$ 8 in $\times$ 5 in
☐ B. 10 in $\times$ 9 in $\times$ 5 in
 ☐ D. 11 in $\times$ 8 in $\times$ 5 in



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8) 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

☐ B. 70000 feet

☐ C. -33000 feet

☐ D. 33000 feet

9) Evaluate $x^2 - 4x$ when $x = 5$.

☐ A. 5

☐ B. 10

☐ C. 20

☐ D. 45

10) Which terms are like terms?

☐ A. $4x$ and $4y$

☐ B. $3x^2$ and $3x$

☐ C. $7m$ and $2m$

☐ D. $5xy$ and $5x$

11) Which expression is equivalent to $3(2y + 7)$?

☐ A. $6y + 21$

☐ B. $6y + 7$

☐ C. $3y + 10$

☐ D. $2y + 21$

12) For the inequality $x - 4 \geq 3$, which value is **not** a solution?

☐ A. $x = 7$

☐ B. $x = 10$

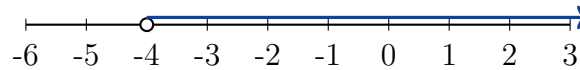
☐ C. $x = 6$

☐ D. $x = 100$

13) A proportional relationship is shown by a line through the origin and $(4, 6)$. What is the constant of proportionality?



- 1) Solve $-2x < 8$ and choose the correct graph.



- ☐ A. Open circle at -4 pointing left ☐ C. Closed circle at -4 pointing right
☐ B. Open circle at -4 pointing right ☐ D. Closed circle at -4 pointing left
- 2) Two dot plots show the number of iced beverages sold daily at two coffee shops. Shop X: 40, 42, 42, 44, 44, 44, 46, 48 beverages. Shop Y: 20, 30, 40, 50, 60, 70 beverages. Which shop's daily sales are easier for inventory planning?

- ☐ A. Shop X (clusters tightly; easier to predict daily demand) ☐ C. Both shops are identical for planning
☐ B. Shop Y (wider range allows flexibility) ☐ D. Shop Y (higher maximum sales)
- 3) The stem-and-leaf plot shows daily sales:

Stem	Leaves
1	4, 7
2	2, 5, 8
3	1, 5, 6, 9

How many days did sales fall below 25?

- ☐ A. 3 ☐ C. 5
☐ B. 4 ☐ D. 6

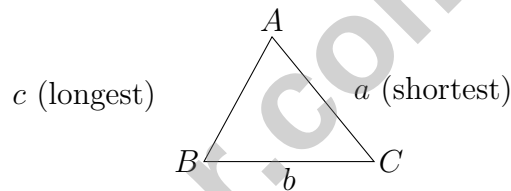


- 4) A jewelry box lid has a square face ($8\text{ cm} \times 8\text{ cm}$) with a semicircular handle attached to the top (diameter 8 cm). Using $\pi \approx 3.14$, what is the total area?

☐ A. 64 cm^2 ☐ C. 100.48 cm^2
☐ B. 89.12 cm^2 ☐ D. 127.04 cm^2

- 5) A rectangular prism has dimensions 2 feet, 3 feet, and 4 feet. A second rectangular prism has dimensions 4 feet, 6 feet, and 8 feet. How many times larger is the volume of the second prism than the first?

☐ A. 2 times ☐ C. 8 times
☐ B. 4 times ☐ D. 16 times



6)

A scalene triangle has sides of length a , b , and c where $a < b < c$. Which inequality must be true?

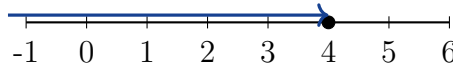
☐ A. $a + b < c$ ☐ C. $a + b > c$
☐ B. $a + b = c$ ☐ D. $a - b > c$

- 7) Evaluate: $\frac{5}{12} + \frac{1}{3}$. Express your answer as a fraction in simplest form.



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- 1) What is $13 \div (-4)$? (Integer division with remainder)
- ☐ A. -3 ☐ C. 3.25
☐ B. -3.25 ☐ D. Undefined
- 2) A runner covers 3 miles in 30 minutes. At this rate, how many miles does the runner cover per minute?
- ☐ A. 30 miles per minute ☐ C. 10 miles per minute
☐ B. 0.5 miles per minute ☐ D. 0.1 miles per minute
- 3) A survey asks 400 people about their favorite food. If 28% prefer pizza, how many prefer pizza?
- ☐ A. 28 ☐ C. 112
☐ B. 72 ☐ D. 288
- 4) A store advertises “If your item costs more than \$50, get 30% off; if it costs \$50 or less, get 20% off.” A customer buys a shirt for \$55 before discount. After the discount, how much does she pay?
- ☐ A. \$11 ☐ C. \$25
☐ B. \$44 ☐ D. \$38.50
- 5) Solve $2x - 1 \leq 7$ and select the correct graph.



- ☐ A. Closed circle at 4 pointing left ☐ C. Closed circle at 4 pointing right
☐ B. Open circle at 4 pointing left ☐ D. Open circle at 4 pointing right



6) Solve: $0.5x + 2 < 7$

☐ A. $x < 10$

☐ C. $x < 18$

☐ B. $x > 10$

☐ D. $x < 4.5$

7) A polling company uses a phone directory to call residents and ask about voting intentions. What bias might this method have?

☐ A. Neither; it is a random sample

☐ C. Only calls during evening hours

☐ B. Excludes people with unlisted phone numbers and cell-phone-only users

☐ D. Leads respondents to lie about their voting plans

8) A floor plan uses a scale of $\frac{1}{2}$ inch : 1 foot. How many feet does 1 inch on the floor plan represent?

☐ A. 0.5

☐ C. 2

☐ B. 1

☐ D. 24

9) A rectangle on a map is 5 cm by 8 cm. The scale is 1 cm : 10 km. If the scale changes to 1 cm : 5 km, what are the new dimensions?

☐ A. 5 cm by 8 cm

☐ C. 2.5 cm by 4 cm

☐ B. 10 cm by 16 cm

☐ D. 50 cm by 80 cm

10) A cone is sliced horizontally (parallel to its circular base). What is the shape of the cross-section?

☐ A. Rectangle

☐ C. Circle

☐ B. Triangle

☐ D. Ellipse



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Montana Aligned to Standards Through-Year 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 Montana Aligned to Standards Through-Year 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) Speed is distance divided by time: $k = 120/2 = 60$ miles per hour.
- 2) **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 $P(\text{at least one heads}) = \frac{3}{4} = 0.75$.
- 3) **Choice D is correct.** (7.NS.2) $2 \times (-3) = -6$. Then $(-6) \times (-2) = 12$. Two negatives (one in the (-3) and one in the (-2)) give a positive.
- 4) **Choice D is correct.** (7.RP.3) Commission = commission rate $\times$ trade value = $0.005 \times 8000 = \$40$.
- 5) **Choice B is correct.** (7.RP.3) With compound interest over 2 years: Final balance = $P(1+r)^2$. Since $P = 1000$ and final = 3000 (tripled), the equation is $1000(1+r)^2 = 3000$. (Note: A is wrong because it assumes 1 year; C is simple interest; D is not a compound formula.)
- 6) **Choice D is correct.** (7.NS.1-7.NS.3) For $5 + (-5) = 0$, we need exactly 5 positive (red) chips and 5 negative (blue) chips, where each pair cancels out. Model A has 5 red but only 2 blue (incorrect). Model B has 5 red and 5 blue (correct).
- 7) **Choice A is correct.** (7.G.4-7.G.6) $SA = 2(10 \cdot 8 + 10 \cdot 5 + 8 \cdot 5) = 2(80 + 50 + 40) = 2(170) = 340 \text{ in}^2$.
- 8) **Choice D is correct.** (7.NS.1b) New altitude = $35000 + (-2000) = 33000$ feet. The plane's altitude decreased by 2000 feet.
- 9) **Choice A is correct.** (7.EE.1-7.EE.2) Substitute: $(5)^2 - 4(5) = 25 - 20 = 5$.
- 10) **Choice C is correct.** (7.EE.1) Like terms have the same variable and exponent. Both $7m$ and $2m$ contain the variable m with exponent 1.
- 11) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute: $3(2y + 7) = 3(2y) + 3(7) = 6y + 21$. Check: factor back to verify.
- 12) **Choice C is correct.** (7.EE.4b) Check $x = 6$: $6 - 4 = 2 \not\geq 3$. The other values give 3, 6, and 96, all ≥ 3 .
- 13) **The correct answer is 1.5.** (7.RP.1-7.RP.3) The unit rate is $6 \div 4 = 1.5$.
- 14) **Choice A is correct.** (7.SP.1-7.SP.4) Surveying only customers at one store at one time is a convenience sample because it only includes people who are easy to reach, not a random selection of all teenagers in the city.
- 15) **Choice B is correct.** (7.NS.1-7.NS.3) Total flour = $4 \times \frac{5}{8} = \frac{20}{8} = \frac{5}{2} = 2\frac{1}{2}$ cups.
- 16) **Choice A is correct.** (7.EE.4a) Distribute: $4x + 36 = 60$. Subtract 36: $4x = 24$. Divide by 4: $x = 6$.
- 17) **Choice C is correct.** (7.G.1-7.G.5) Real length: $8 \text{ cm} \times 64 = 512 \text{ cm} = 5.12 \text{ m}$.
- 18) **The correct answer is A,D.** (7.RP.1-7.RP.3) A and D are true. Relationship A ($y = 4x$) is proportional and has y -intercept 0. Relationship B has constant term 2, so it is not proportional and has y -intercept 2.
- 19) **The correct answer is 150.** (7.RP.3) Compute $\frac{3}{4} \times 200 = 150$.
- 20) **Choice D is correct.** (7.G.1-7.G.5) Actual dimensions: $7.5 \times 8 = 60$ ft and $10 \times 8 = 80$ ft; area: $60 \times 80 = 4,800 \text{ ft}^2$.
- 21) **Choice C is correct.** (7.G.1-7.G.5) Any plane perpendicular to a cone's axis creates a circular cross-section. The smaller the radius of the cross-section, the higher up on the cone the cut is made.
- 22) **Choice B is correct.** (7.G.1-7.G.5) A 90° clockwise rotation maps $(x, y) \rightarrow (y, -x)$. So $(4, -1) \rightarrow (-1, -4)$.
- 23) **Choice B is correct.** (7.G.1-7.G.5) Scale factor $\frac{2}{5}$ means smaller = larger $\times \frac{2}{5} = 100 \times \frac{2}{5} = 40 \text{ cm}$.
- 24) **Choice B is correct.** (7.G.4-7.G.6) The volume formula is $V = \pi r^2 h$. With $r = 3$ and $h = 7$, this is $\pi \times 3^2 \times 7$.
- 25) **The correct answer is \$60.** (7.RP.3) A 20% discount means the sale price is $100\% - 20\% = 80\%$ of the original. So $48 = \text{original} \times 0.80$, giving $\text{original} = 48 \div 0.80 = \60 . Check: $60 \times 0.80 = 48$ ✓
- 26) **Choice B is correct.** (7.SP.5-7.SP.8) Favorable outcomes: 5, 6 (two outcomes). Total outcomes: 6. $P(>4) = \frac{2}{6} = \frac{1}{3}$.
- 27) **Choice B is correct.** (7.NS.1-7.NS.3) Correct answer: $-8 + 5 = -3$. The student likely added $|-8| + |5| = 13$ and then used the negative sign, forgetting that when adding numbers with different signs, the result has the sign of the larger absolute value.
- 28) **The correct answer is \$6000.** (7.RP.3) $I = 5000 \times 0.08 \times 2.5 = \1000 . $A = 5000 + 1000 = \$6000$.
- 29) **Choice B is correct.** (7.NS.1-7.NS.3) $2\frac{2}{5} = \frac{12}{5}$. Then $\frac{12}{5} \div \frac{4}{5} = \frac{12}{5} \times \frac{5}{4} = \frac{12}{4} = 3$.



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Hi, Thoughtful Reader!

◇ A strong Grade 7 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

★ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 7 opportunities to rehearse test-day habits. ★

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 7 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

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

Jay Daie

Your Reading-and-Math Helper

Practice Today. Succeed Tomorrow!

This book includes **7** 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:

7 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
- ✓ 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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