

9 Montana

MAST

GRADE 7

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

Program



9 PRINTED
TESTS



2 ONLINE
TESTS



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



BUILT FOR ACAP
Standards-Aligned



**STRENGTHEN
SKILLS**



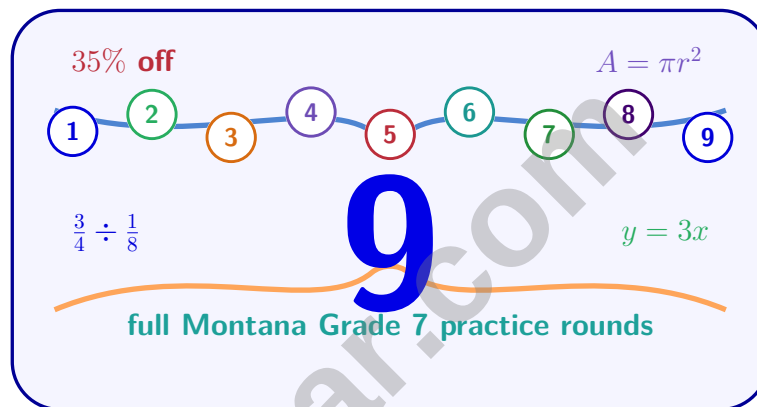
**SHARPEN
THINKING**



BE TEST-READY
Improve Performance

9 Montana MAST Grade 7 Math Practice Tests

Standards-Aligned Montana Practice for Proportional Reasoning, Expressions, Geometry, Statistics, and Probability



Nine 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!

Nine focused rounds for sharper MAST math thinking

This book gives you nine 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

A nine-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?

Nine MAST tests, 360 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.
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 stem-and-leaf plot shows quiz scores for two students. Student A: Stem 6: Leaves 2, 8 | Stem 7: Leaves 1, 5, 9 | Stem 8: Leaves 3, 6. Student B: Stem 6: Leaves 4 | Stem 7: Leaves 2, 7 | Stem 8: Leaves 0, 4, 8. How many total scores are represented?
- ☐ A. 9 scores ☐ C. 12 scores
☐ B. 11 scores ☐ D. 13 scores
- 2) A freelance designer charges clients a 15% design fee on top of materials costs. If materials cost \$200, what is the total cost to the client?
- ☐ A. \$215 ☐ C. \$245
☐ B. \$260 ☐ D. \$230
- 3) A dot plot shows cholesterol levels (in mg/dL) for two age groups. Group 1 (Ages 30–40): 160, 165, 165, 170, 170, 170, 175, 180 mg/dL; Group 2 (Ages 50–60): 140, 160, 190, 210, 230, 240 mg/dL. What is the key difference?
- ☐ A. Group 1 is more concentrated; Group 2 is more spread out
☐ B. Group 2 has lower cholesterol overall
☐ C. Both groups have identical levels
☐ D. Group 1 always has higher cholesterol
- 4) A bag contains only red and blue marbles. A marble is drawn 150 times with replacement. Red appears 84 times. Based on this experiment, which is the best estimate of the probability of drawing a red marble on the next draw?
- ☐ A. 0.44 ☐ C. 0.56
☐ B. 0.50 ☐ D. 0.84



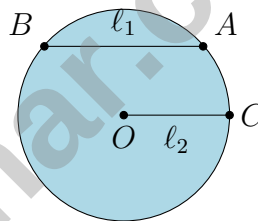
5) A student mistakenly writes: "Stem 2 with leaves 3, 5, 7 represents 3, 5, 7." What is the error?

- ☐ A. The leaves are not in ascending order
- ☐ B. The student forgot to combine the stem with each leaf
- ☐ C. The stems and leaves are reversed
- ☐ D. There is no error; the representation is correct

6) A rectangular prism has length 12 cm, width 5 cm, and height 3 cm. Which expression correctly represents the volume?

- ☐ A. $(12 + 5) \times 3$
- ☐ B. $12 \times 5 \times 3$
- ☐ C. $2(12 + 5 + 3)$
- ☐ D. $12 + 5 + 3$

7) In the circle below, which line segment is a chord?



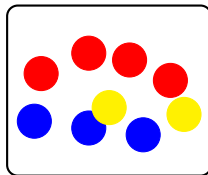
- ☐ A. ℓ_1 (segment AB)
- ☐ B. ℓ_2 (segment OC)
- ☐ C. Segment OA
- ☐ D. None of the above



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- 8) A bag contains 4 red marbles, 3 blue marbles, and 2 yellow marbles. What is the probability of drawing a blue marble?

Bag of marbles



- ☐ A. $\frac{3}{9}$ ☐ C. $\frac{2}{9}$
☐ B. $\frac{4}{9}$ ☐ D. $\frac{3}{4}$
- 9) A toy car is $\frac{1}{10}$ the size of a real car. If the toy is 8 inches long, how long is the real car?
- ☐ A. 0.8 feet ☐ C. 6.67 feet
☐ B. 4 feet ☐ D. 80 inches
- 10) If a bicycle costs \$120 and the sales tax is 8%, what is the tax amount?
- ☐ A. \$8 ☐ C. \$12
☐ B. \$14.40 ☐ D. \$9.60
- 11) What is $-11 + 14$?
- ☐ A. 25 ☐ C. -3
☐ B. -25 ☐ D. 3
- 12) A random sample of 160 cars showed 56 had a sunroof. The county has 8000 registered cars. About how many have a sunroof?



- 1) A class took two different exams. Exam 1: median = 78. Exam 2: median = 78. Exam 1 range = 25. Exam 2 range = 8. What can we infer?
- ☐ A. Exam 1 was harder
- ☐ B. Exam 2 had more consistent student performance
- ☐ C. Students performed identically on both exams
- ☐ D. Exam 1 was easier
- 2) A mason lays $\frac{3}{4}$ of a patio using $\frac{1}{2}$ ton of bricks. How many tons are needed for the entire patio?
- ☐ A. $\frac{1}{2}$ ton
- ☐ B. $\frac{3}{8}$ ton
- ☐ C. $\frac{1}{3}$ ton
- ☐ D. $\frac{2}{3}$ ton
- 3) If y is proportional to x and $y = 20$ when $x = 4$, what is the constant of proportionality?
- ☐ A. $k = 80$
- ☐ B. $k = 4$
- ☐ C. $k = 20$
- ☐ D. $k = 5$
- 4) Maya runs at 8 miles per hour. After running for t hours, she has covered d miles. Which equation is correct?
- ☐ A. $d = 8 + t$
- ☐ B. $d = \frac{8}{t}$
- ☐ C. $t = 8d$
- ☐ D. $d = 8t$
- 5) A recipe uses 2 cups of sugar for each batch of cookies. What is the constant of proportionality (cups per batch)? If 15 batches are made, what is the total amount of sugar used?
- ☐ A. $k = 30$; total = 2 cups
- ☐ B. $k = 1$; total = 15 cups
- ☐ C. $k = 15$; total = 30 cups
- ☐ D. $k = 2$; total = 30 cups



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6) Which expression represents “the quotient of p and 4, plus 5”?

☐ A. $\frac{p}{4} + 5$

☐ B. $\frac{p+5}{4}$

☐ C. $4p + 5$

☐ D. $p + \frac{5}{4}$

7) A student simplifies $6x + 2x - 4x$ and gets $4x$. Is this correct?

☐ A. Yes, all terms were combined correctly.☐ B. No, the correct answer is $12x$.☐ C. No, the correct answer is $3x$.☐ D. No, the answer cannot be simplified.

8) What is the GCF of $28xy$ and $42x$?

☐ A. $14x$

☐ B. $28xy$

☐ C. $42x$

☐ D. $7x$

9) Solve: $-2x + 3 < 9$

☐ A. $x > -3$

☐ B. $x < -3$

☐ C. $x < 6$

☐ D. $x \geq 3$

10) A principal wants to know the average number of hours students study per week at her school. Which is the BEST way to collect a representative sample?

☐ A. Survey only the students in her own homeroom☐ B. Survey the first 30 students who arrive Monday morning☐ C. Randomly select 30 students from each grade☐ D. Survey only students on the honor roll

1) A rectangular prism with a volume of 360 m^3 has a base area of 40 m^2 . Find the height.

☐ A. 4 m

☐ B. 7 m

☐ C. 9 m

☐ D. 14400 m

2) Solve: $2(x - 3) \leq 10$

☐ A. $x \leq 3$

☐ B. $x \leq 8$

☐ C. $x \leq 13$

☐ D. $x < 8$

3) A baker makes cookies. She sells mini-cookies for \$0.50 each and bundles of 12 for \$5. Which expression shows the cost of 3 bundles and 8 individual cookies?

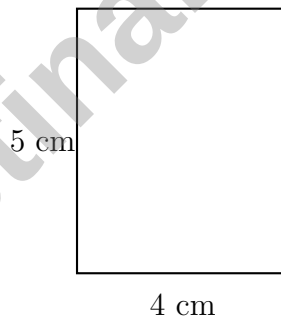
☐ A. $3 + 8(5 + 0.50) = \$46.50$

☐ B. $(3 + 8)(5) = \$55$

☐ C. $5(3) + 0.50 + 8 = \$23.50$

☐ D. $3(5) + 8(0.50) = \$19$

Scale: 1 cm : 5 cm



4)

A student calculated the actual area by multiplying $4 \times 5 \times 5 = 100 \text{ cm}^2$ instead of correctly squaring the scale factor. What is the correct actual area?

☐ A. 100 cm^2

☐ B. 200 cm^2

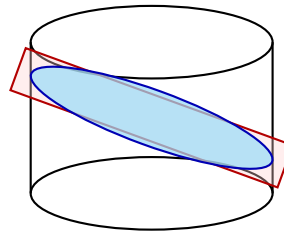
☐ C. 400 cm^2

☐ D. 500 cm^2



- 5) 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



6)

A cylinder is sliced by an oblique plane, as shown. What is the shape of the resulting cross-section?

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

- 7) Estimate $\sqrt{130}$ to the nearest whole number.

- 8) If a complementary pair has one angle that is four times the other, what is the measure of the smaller angle?

- ☐ A. 15° ☐ C. 22.5°
☐ B. 18° ☐ D. 30°



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Montana MAST 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 MAST practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (7.SP.1-7.SP.4) Student A: Stem 6 (2 leaves) + Stem 7 (3 leaves) + Stem 8 (2 leaves) = 7 scores. Student B: Stem 6 (1 leaf) + Stem 7 (2 leaves) + Stem 8 (3 leaves) = 6 scores. Total = 7 + 6 = 13 scores.
- 2) **Choice D is correct.** (7.RP.3) Design fee = $0.15 \times 200 = \$30$. Total = $200 + 30 = \$230$.
- 3) **Choice A is correct.** (7.SP.3) Group 1 clusters at 165–175 mg/dL (range 20). Group 2 spans 140–240 mg/dL (range 100), showing much greater spread and variability.
- 4) **Choice C is correct.** (7.SP.6) Experimental probability = $\frac{84}{150} = 0.56$. The relative frequency of drawing red guides our prediction for future draws.
- 5) **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.
- 6) **Choice B is correct.** (7.G.4-7.G.6) Volume of a rectangular prism is length $\times$ width $\times$ height, so $12 \times 5 \times 3 = 180 \text{ cm}^3$.
- 7) **Choice A is correct.** (7.G.4-7.G.6) A chord connects two points on the circle. AB is a chord. OC is a radius, not a chord.
- 8) **Choice A is correct.** (7.SP.5-7.SP.8) Total marbles = $4 + 3 + 2 = 9$. Blue marbles = 3. Probability = $\frac{3}{9} = \frac{1}{3}$.
- 9) **Choice D is correct.** (7.RP.1-7.RP.3) If the toy is $\frac{1}{10}$ the size, the real car is 10 times larger: $8 \times 10 = 80$ inches.
- 10) **Choice D is correct.** (7.RP.3) The tax is 8% of \$120: $0.08 \times 120 = 9.60$ dollars.
- 11) **Choice D is correct.** (7.NS.1b) Subtract absolute values: $|14| - |-11| = 14 - 11 = 3$. Since $14 > |-11|$ and 14 is positive, the answer is 3.
- 12) **The correct answer is 2800.** (7.SP.1-7.SP.4) $\frac{56}{160} = \frac{x}{8000}$. Reduce: $\frac{7}{20} = \frac{x}{8000} \Rightarrow x = 2800$.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{3/4}{1/2} = \frac{3}{4} \times 2 = \frac{3}{2}$ gallons per minute.
- 14) **Choice D is correct.** (7.RP.1-7.RP.3) Ratio: $\frac{\text{flour}}{\text{sugar}} = \frac{2/3}{1/3} = \frac{2}{3} \times \frac{3}{1} = 2$.
- 15) **Choice D is correct.** (7.RP.1-7.RP.3) The price per notebook is $\frac{24}{8} = 3$ dollars. For 5 notebooks: $5 \times 3 = 15$ dollars.
- 16) **Choice A is correct.** (7.NS.1-7.NS.3) First 9 minutes: $9 \div \frac{3}{4} = 12$ laps. Next 7 minutes: $7 \div \frac{7}{8} = 8$ laps. Total: $12 + 8 = 20$ laps.
- 17) **The correct answer is 3.** (7.G.1-7.G.5) All three corresponding side lengths match, so the triangles are congruent by SSS.
- 18) **The correct answer is 18.** (7.EE.4a) Equation: $15g + 250 = 520$. Solution: $15g = 270$, so $g = 18$. Verification: $15(18) + 250 = 270 + 250 = 520$. ✓
- 19) **Choice A is correct.** (7.EE.1-7.EE.2) Combine: $(5p + 2p) + (3 - 9) = 7p - 6$.
- 20) **Choice C is correct.** (7.G.1-7.G.5) Map length: $450 \div 15 = 30$ cm.
- 21) **The correct answer is A,C.** (7.G.4-7.G.6) Option A is correct (60 m^2). Option C is correct (18 m^2). The true total is $60 + 18 = 78 \text{ m}^2$, so D and
- 22) **Choice D is correct.** (7.RP.3) To find 38% of 210, set percent over 100 equal to part over whole: $\frac{38}{100} = \frac{x}{210}$. Cross-multiply: $x \approx 80$.
- 23) **Choice D is correct.** (7.RP.3) $20\% \times \$500 = 0.20 \times 500 = \100 is correct. Options A, C, and D represent common errors (wrong percent, tax confusion, and flipping categories).
- 24) **Choice B is correct.** (7.NS.1-7.NS.3) Evaluate: A: $|-0.8| = 0.8$; B: $|-6| = 6$; C: $|-1.1| = 1.1$; D: $|1.3| = 1.3$. Greatest is B.
- 25) **Choice C is correct.** (7.NS.1-7.NS.3) Because $12 \times 12 = 144$, the square root of 144 is 12.
- 26) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute the 2 and distribute the negative: $10x - 4 - (3x - 4) = 10x - 4 - 3x + 4$. Combine like terms: $(10x - 3x) + (-4 + 4) = 7x + 0 = 7x$. The simplified form shows that the constants cancel, leaving only $7x$.
- 27) **Choice C is correct.** (7.EE.3-7.EE.4) Multiply: $3 \times \frac{2}{3} = \frac{6}{3} = 2$ cups. Check: $\frac{2}{3}$ is roughly 0.67; $3 \times 0.67 \approx 2$ ✓. Reasonable: tripling means flour increases 3 times.
- 28) **The correct answer is $\frac{139}{6}$.** (7.G.1-7.G.5) Vertical angles are equal. Adjacent angles are supplementary: $(6z - 3) + 44 = 180$. Simplify: $6z + 41 = 180$. Solve: $6z = 139$, so $z \approx 23.17$.



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Hi, Confident Learner!

◇ This high-stamina book gave you nine substantial Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 7 math can feel big because it brings together rational numbers, expressions, equations, geometry, probability, and data. ◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 7 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **9** 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:

9 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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