

# 7 Montana MAST

## Grade 6 MATH PRACTICE TESTS

7  
PRINTED  
TESTS  
+  
2  
ONLINE  
TESTS

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

Standards-Aligned *Steady Southern*  
Problem Solving for Comprehensive  
Assessment Program



7 Full-Length  
Printed Tests



Standards-Aligned  
Math Practice



Detailed Answer Keys  
and Explanations



Build Confidence.  
Achieve Success.



You've  
Got  
This!



PREPARE  
PRACTICE  
SUCCEED



PRACTICE  
WITH PURPOSE



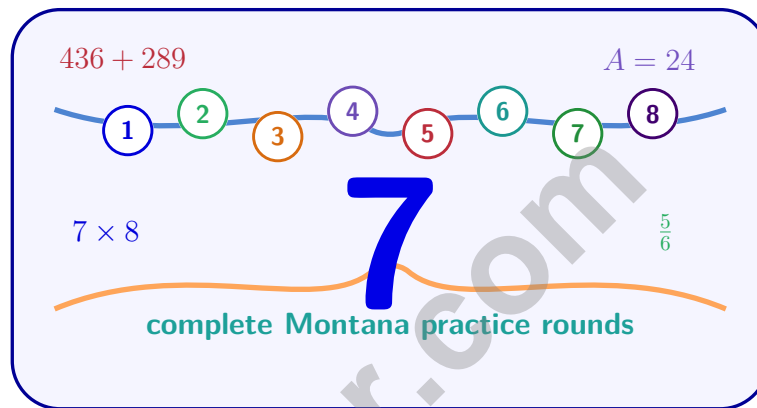
STRENGTHEN  
MATH SKILLS



REVIEW, IMPROVE,  
AND SUCCEED

# 7 Montana MAST Grade 6 Math Practice Tests

*Standards-Aligned Big-Sky Math Stamina for Montana Aligned to Standards Through-Year*



Seven complete 40-question Grade 6 practice rounds for MAST, built for big-sky math stamina with ratios, rational numbers, expressions, equations, geometry, statistics, answer keys, and clear explanations for every item.

**Jay Daie and Reza Nazari**



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# Welcome, Montana Math Explorer!

Eight focused rounds using big-sky math stamina

This book gives you seven full Grade 6 practice tests for MAST. Each round uses wide valleys, mountain passes, and patient problem routes as a fresh mental backdrop while you read closely, choose a smart strategy, show your work, and check whether your answer makes sense.

## Your Montana Practice Promise

Give the problem space: read, draw or list, solve, and check the scale of the answer.

Read

Plan

Check

## How to Use This Book

A seven-session routine for big-sky math stamina

1. **Work in order.** Take one 40-question test at a time in a quiet place.
2. **Preview the skills.** Scan the quick review pages before beginning the first round.
3. **Correct actively.** Retry missed items before reading the full explanation.
4. **Mark confidence.** Put a small star beside problems where your plan felt strong.
5. **Plan the next round.** Use the growth log to choose one habit and one skill to practice.

**Montana review rhythm:** Work one round, mark the tough climbs, and practice those skills before the next ascent.



## What Is Inside?

Eight MAST tests, 320 questions, and a full review path

Part	What You Will Practice
Tests 1–3	Foundation rounds for ratios, rational numbers, operations, and careful reading.
Tests 4–6	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Test 7	Final stamina round for mixed review, neat work, and flexible strategy choices.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Big-sky math stamina means recognizing the skill even when the next question changes topic, changes format, or asks for an explanation.



Scan me!  
For more practice  
& answers

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Yellow Blue

1)

The bar shows yellow and blue sections in a ratio of 3 : 1. If the blue section is 8 units, what is the length of the yellow section?

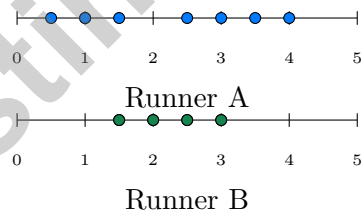
- A. 3 units
- B. 8 units
- C. 24 units
- D. 11 units

2) A researcher asks students: “How many minutes did you exercise yesterday?”

Which describes the population being sampled?

- A. All students in the school
- B. The number of minutes in a day
- C. The students who answered the survey
- D. All sixth graders in the state

3) Two runners’ sprint times (seconds) over 8 races. Which runner has more consistent sprint times?



- A. Runner A
- B. Runner B
- C. Both are equally consistent
- D. Cannot determine from dot plots



9) The table shows  $h = 2, 4, 6$  and  $s = 8, 16, 24$ . What is the constant of proportionality?

10) In the expression  $3xy + 5z + 8$ , which statement is true?

- A. The coefficient of  $z$  is  $5z$ .       C. The only constant term is  $3xy$ .
- B. There are 3 terms and 1 constant term.       D. The factors of  $3xy$  include 3,  $x$ , and  $y$ .

11) Find the value of  $12 - 3(n - 1)$  when  $n = 3$ .

- A. 3       C. 9
- B. 6       D. 12

12) Simplify  $11x - 6x + 2x$ .

- A.  $7x$        C.  $5x$
- B.  $15x$        D.  $19x$

13) Solve for  $x$ :  $8x = 32$

- A.  $x = 4$        C.  $x = 40$
- B.  $x = 24$        D.  $x = 256$

14) Which inequality correctly matches “fewer than 20 items”?

- A.  $i \geq 20$        C.  $i \leq 20$
- B.  $i < 20$        D.  $i > 20$

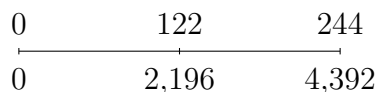




6) A business budgets \$5000 for operations. They allocate 60% to salaries. After paying salaries, what percent of the original \$5000 budget is remaining?

- A. 20%
- B. 30%
- C. 40%
- D. 50%

Double Number Line:  $4,392 \div 18$



7)

According to the number line, what is  $4,392 \div 18$ ?

- A. 122
- B. 200
- C. 244
- D. 220

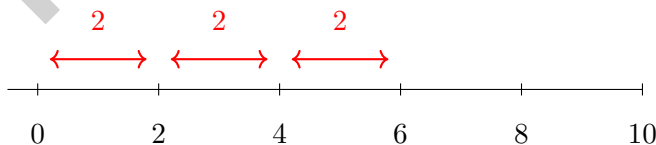
8) Factor  $8 + 12$  using the GCF.

- A.  $2(4 + 6)$
- B.  $4(2 + 3)$
- C.  $3(2.67 + 4)$
- D.  $8(1 + 1.5)$

9) Which pair of numbers are NOT equivalent on the number line?

- A.  $-\frac{1}{2}$  and  $-0.5$
- B.  $\frac{3}{4}$  and  $0.75$
- C.  $-\frac{1}{4}$  and  $-0.4$
- D.  $-2$  and  $-\frac{6}{3}$

10)



The number line shows 3 jumps of 2 units each to the right. Which multiplication represents this?

- A.  $3 \times 2 = 6$
- B.  $2 + 2 + 2 = 6$
- C.  $(-2) \times (-3)$
- D.  $(-2) \times 3$



- 5) A catering company charges a constant fee per person. The graph shows points (6, 72) and (10, 120) on the line representing the cost-per-person ratio.

What is the cost per person?

- A. \$8 per person                       C. \$12 per person  
 B. \$10 per person                       D. \$15 per person
- 6) A decimal is 0.58. What is this as a percent?
- A. 5.8%                                       C. 0.058%  
 B. 58%                                         D. 580%
- 7) Sarah scored 45 correct answers out of 60 questions on a math test. What percent of the questions did she answer correctly?
- A. 55%                                         C. 75%  
 B. 65%                                         D. 85%
- 8) Two storage plans charge monthly fees: Plan P: No upfront cost, \$8 per month Plan Q: \$20 upfront, then \$3 per month  
After 6 months, which plan shows a proportional relationship to the time elapsed?
- A. Plan P only                                 C. Both plans are proportional  
 B. Plan Q only                                 D. Neither plan is proportional
- 9) A student uses the fact that  $5,200 \div 13 = 400$  to help solve  $5,213 \div 13$ . What is the relationship between these two quotients?
- A.  $5,213 \div 13 = 401$  (quotient increases by 1)                       C.  $5,213 \div 13 = 401$  exactly  
 B.  $5,213 \div 13 = 400$  remainder 13                       D.  $5,213 \div 13 = 400$  remainder 1



## Montana MAST Practice Test Answer Keys

**How to use this Montana MAST answer section with a Grade 6 student:**

1. check the answer first, then write one quick reason the choice is correct
2. mark questions to try again, especially the skills that feel connected to big-sky math stamina
3. rework the problem before reading the full explanation, using this reminder:  
Give the problem space: read, draw or list, solve, and check the scale of the answer.

**A calm Montana correction routine turns every missed item into useful practice. Work one round, mark the tough climbs, and practice those skills before the next ascent.**



Scan me!  
For more practice  
& answers

## Montana Practice Test Answers and Explanations

Review the seven printed MAST tests with patient, strong, and ready for the next climb habits.

### Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** **(6.RP.1)** Blue is the 1-part amount, and it is 8 units. Yellow is 3 parts, so the yellow length is  $3 \times 8 = 24$  units.
- 2) **Choice A is correct.** **(6.SP.3)** If this survey asks all students in the school, that is the population. The sample would be the subset of students who actually answered the survey. Option C describes the sample, not the population.
- 3) **Choice B is correct.** **(6.SP.5)** Runner B's times cluster tightly around 2–3 seconds (range  $\approx 1.5$ ), while Runner A's times are spread from 0.5 to 4 seconds (range  $\approx 3.5$ ). Smaller range indicates more consistency.
- 4) **Choice A is correct.** **(6.SP.4)** Each temperature appears exactly once in the data, so there is no mode (or all are modes).
- 5) **Choice D is correct.** **(6.SP.4)** The data is: 21, 23, 25, 28, 30, 34, 37, 42, 46. Each value appears exactly once, so there is no mode (no repeated value).
- 6) **Choice B is correct.** **(6.RP.1)**  $IQR = Q_3 - Q_1 = 22 - 14 = 8$ .
- 7) **Choice D is correct.** **(6.NS.3)** Hearts in deck = 13. Total cards = 52. Probability =  $\frac{13}{52} = \frac{1}{4}$ .
- 8) **Choice B is correct.** **(6.NS.1)**  $\frac{2}{9} = \frac{200}{900}$ . So  $\frac{2}{9} \times 900 = 1800 \div 9 = 200$  items.
- 9) **The correct answer is 4.** **(6.EE.9)** Check the ratio each time:  $8/2 = 4$ ,  $16/4 = 4$ , and  $24/6 = 4$ . The constant of proportionality is 4.
- 10) **Choice D is correct.** **(6.EE.4)**  $3xy = 3 \times x \times y$ . The factors are the quantities being multiplied. Options A, B, C contain errors: A uses the term not the coefficient, C misidentifies the constant, and B counts wrong.
- 11) **Choice B is correct.** **(6.EE.3)** Substitute  $n = 3$ :  $12 - 3(3 - 1) = 12 - 3(2) = 12 - 6 = 6$ .
- 12) **Choice A is correct.** **(6.EE.3)** Combine like terms:  $(11 - 6 + 2)x = 7x$ .
- 13) **Choice A is correct.** **(6.EE.5)** Divide both sides by 8:  $x = 32 \div 8 = 4$ .
- 14) **Choice B is correct.** **(6.EE.8)** "Fewer than" means strictly less than:  $i < 20$ .
- 15) **Choice C is correct.** **(6.EE.8)** "No more than" means "less than or equal to," so the inequality is  $x \leq 12$ .
- 16) **Choice C is correct.** **(6.G.1)** Using  $A = \frac{1}{2}(b_1 + b_2) \times h$ :  $32 = \frac{1}{2}(10 + 6) \times h = 8h$ , so  $h = 4$  cm.
- 17) **Choice D is correct.** **(6.G.2)** The correct formula is  $V = L \times W \times H$ , not addition.  $V = 5 \times 4 \times 3 = 60 \text{ m}^3$ .
- 18) **Choice C is correct.** **(6.G.3)** Length =  $6 - 1 = 5$  units; width =  $6 - 2 = 4$  units. Area =  $5 \times 4 = 20$  square units.
- 19) **Choice A is correct.** **(6.RP.1)** Simplify each team's ratio. Panthers have  $12 : 8 = 3 : 2$ , Tigers have  $9 : 6 = 3 : 2$ , and Lions have  $6 : 5$ . Only Panthers and Tigers match.
- 20) **Choice B is correct.** **(6.RP.2)** Divide eggs by servings:  $3 \div 2 = \frac{3}{2}$  eggs per serving (or 1.5 eggs per serving).
- 21) **The correct answer is Choosing a job and opening a savings account.** **(6.SP.4)** (A) and (D) are personal financial decisions an individual makes about their own money. (B) is just watching a show, not making a decision; (C) is a government policy; (E) is set by the Federal Reserve.
- 22) **Choice B is correct.** **(6.RP.3)** The ratio is 11 : 6. When offensive is 22 (multiply by 2), defensive is  $6 \times 2 = 12$ .
- 23) **Choice C is correct.** **(6.RP.2)**  $\frac{60}{200} = \frac{30}{100} = 30\%$  (divide both by 2).
- 24) **Choice D is correct.** **(6.RP.1)** 150% of 3 =  $1.50 \times 3 = 4.5$  cups.
- 25) **Choice D is correct.** **(6.RP.3)** Real plane: 60 m = 6000 cm. At scale 1 : 200, model is  $6000 \div 200 = 30$  cm.
- 26) **Choice A is correct.** **(6.NS.2)**  $3,920 \div 20 = 196$ . The orchard needs 196 crates.
- 27) **The correct answer is 300.** **(6.NS.8)** Distance on map:  $|9 - 3| = 6$  units. Actual distance:  $6 \times 50 = 300$  meters.
- 28) **Choice A is correct.** **(6.NS.3)** A positive times a negative is negative:  $7 \times (-5) = -35$ .
- 29) **Choice D is correct.** **(6.EE.6)** Total cost =  $a + 15 = 20 + 15 = 35$  cents.



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## Author's Note

### From a Friend Who Believes in You

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#### Hi, Friend!

◇ I just want to say something important: I am proud of you. You did 7 full practice tests. That takes time, hard work, and heart. ◇

★ **Friendly truth:** a test is just one part of your math journey. You are SO much more than a score. The work you did is the real win! ★

#### What I Want You to Know

- **You are smart.** Every test you finished proves it.
- **You are brave.** You tried hard problems.
- **You are growing.** Mistakes taught you new things.
- **You are ready.** The skills are inside you.

**One more thing:** on test day, take a deep breath. Smile. Remember that someone (me!) believes in you. You can do this!

If you want to share something or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com).

**Jay Daie**

Your Math Friend

# MASTER TODAY. SUCCEED TOMORROW.

This Grade 6 Math Practice Tests book is designed to help students strengthen their math skills, master important concepts, and build the confidence they need to excel on comprehensive assessments.

With 7 full-length printed tests and 2 online tests, students get the review, practice, and realistic test experience they need to improve accuracy, develop problem-solving abilities, and reach their full potential.

Perfect for classroom use, homework, test preparation, and extra practice at home.



## PERFECT FOR:

- ✓ Classroom Practice
- ✓ Homework & Review
- ✓ Independent Learning
- ✓ Test Preparation
- ✓ Skill Reinforcement
- ✓ Building Confidence

★ PRACTICE TODAY.  
SUCCEED TOMORROW.

## WHAT STUDENTS WILL 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 aligned with standards through meaningful practice.



### Test Confidence

Become familiar with test formats and improve accuracy and speed.



### Achieve Success

Build confidence and perform your best on test day.

## TOPICS COVERED

- ✓ Ratios & Rates
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Fractions & Decimals
- ✓ Percents
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ And More!



## 2 ONLINE TESTS

Extra online practice to reinforce learning and build confidence.

## MORE PRACTICE. GREATER RESULTS.

Give your child the tools needed to develop strong math skills, confidence, and a positive attitude toward learning.



7 FULL-LENGTH  
PRINTED TESTS



STANDARDS-  
ALIGNED PRACTICE



DETAILED ANSWER  
KEYS & EXPLANATIONS