

# 5

# Montana MAST

## GRADE 6 MATH

### PRACTICE TESTS

Standards Aligned Problem Solving  
For Comprehensive Assessment Programs



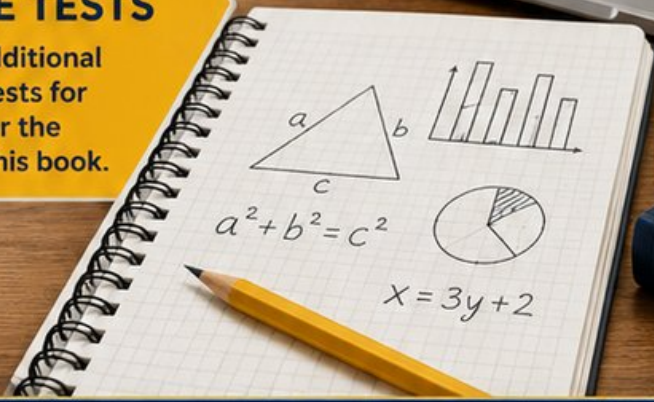
#### 5 PRINTED TESTS

- ✓ Full-Length Practice Tests
- ✓ Realistic Questions
- ✓ Answer Key & Explanations



#### + 2 ONLINE TESTS

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

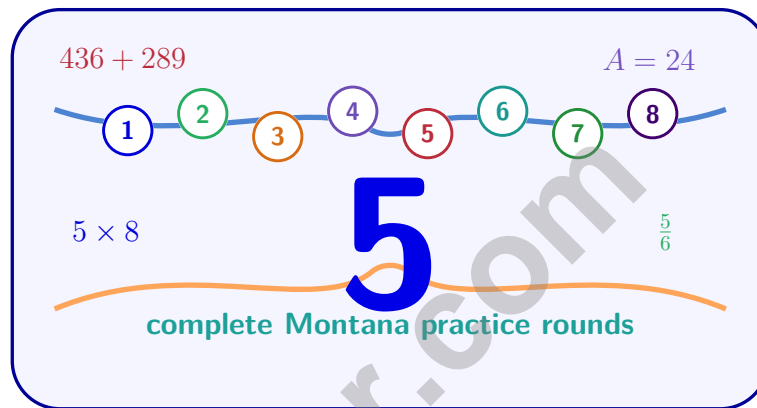


PREPARE • PRACTICE • SUCCEED



# 5 Montana MAST Grade 6 Math Practice Tests

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



Five 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 five 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 five-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 1–2	Foundation rounds for ratios, rational numbers, operations, and careful reading.
Tests 3–4	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Test 5	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

# Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	30
★ Practice Test 3	_____	45
★ Practice Test 4	_____	61
★ Practice Test 5	_____	77
<b>Practice Test Answer Keys</b>	_____	<b>94</b>
<b>Practice Test Answers and Explanations</b>	_____	<b>98</b>

1) Expand  $11(2 + 5)$ .

A.  $22 + 55$

B.  $22 + 5$

C.  $11 + 7$

D.  $77$

2) A basketball player made 18 out of 20 shots. What percent is this?

A. 18%

B. 80%

C. 90%

D. 95%

3) A company's revenue was \$500,000 last year. This year, revenue increased by \$75,000. What is the percent increase?

A. 10%

B. 20%

C. 15%

D. 25%

4) Two friends have different budgets. Friend X spends \$500 on housing and it represents 50% of her income. Friend Y spends \$600 on housing and it represents 40% of his income. Who has a higher income?

A. Friend X has higher income.

B. Cannot be determined from the given information.

C. They have the same income.

D. Friend Y has higher income.

5) Which pair of ratios are NOT equivalent?

A.  $2 : 5$  and  $4 : 10$

B.  $3 : 7$  and  $6 : 14$

C.  $4 : 8$  and  $1 : 3$

D.  $5 : 6$  and  $10 : 12$



6) Write 0.15 as a percent.

7) A recipe for trail mix uses almonds, raisins, and chocolate chips in a 4 : 3 : 5 ratio. If the mix contains 12 ounces of almonds, how many ounces of raisins and chocolate chips combined are in the mix?

- A. 12 oz                       C. 20 oz  
 B. 18 oz                       D. 24 oz

8) Which situation is a ratio (NOT a rate with different units)?

- A. A swimmer completes 4 laps in 8 minutes  
 B. A baker makes 5 loaves of bread per hour  
 C. A class has 12 boys and 15 girls  
 D. A car travels 60 miles per hour

9) A store compares three brands of olive oil.

Brand	Volume	Price
Extra Virgin	25.5 oz	\$12.75
Pure	51 oz	\$24.48
Light	68 oz	\$34.00

Which brand has the lowest unit price per ounce?

- A. Extra Virgin at \$0.50/oz                       C. Light at \$0.50/oz  
 B. Pure at \$0.48/oz                                 D. Light at \$0.51/oz



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- 10) A runner completes 5 miles in 50 minutes. The table below shows equivalent distances and times. Which time is missing?

Distance (miles)	Time (minutes)
5	50
10	100
15	?

- A. 120                       C. 150  
 B. 140                       D. 160
- 11) A student created this ratio table about babysitting rates:

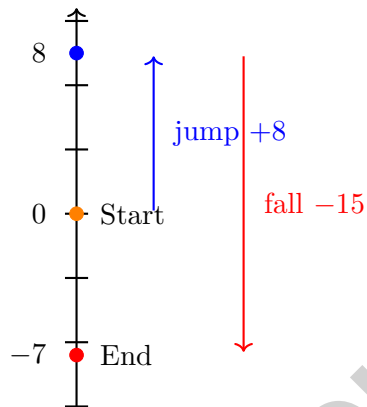
Hours	Dollars Earned
2	24
4	48
6	72

If the student plots  $(0, 0)$ ,  $(2, 24)$ ,  $(4, 48)$ , and  $(6, 72)$  on a coordinate plane, which statement about the points is true?

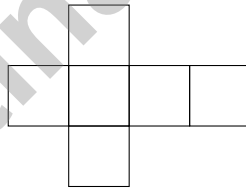
- A. The points form a vertical line                       C. The points form a horizontal line  
 B. The points form a diagonal line through the origin                       D. The points do not form a straight line
- 12) Tanya is solving: “If \$2 costs 8 apples, how much do 20 apples cost?” She calculates:  $\$2 \times 20 \div 8 = \$5$ . Is her work correct?
- A. Yes, her answer is correct                       C. No, she divided by 8 instead of multiplying by the unit rate  
 B. No, she forgot to simplify                       D. No, her setup was backwards



- 1) A video game character starts at elevation 0. She jumps up 8 meters, then falls 15 meters. What is her final elevation?



- A. -23 meters                       C. 7 meters  
 B. 23 meters                         D. -7 meters
- 2) Which shape is a valid net of a cube?



- A. Cross pattern with 6 squares                       C. 2×3 rectangle  
 B. Line of 5 squares with 1 attached                 D. Line of 4 squares only

3) Error Analysis: A student says, "The question 'What color is your favorite crayon?' is statistical because many students have different favorite colors."

What is the error?

- A. Different answers do not automatically make a question statistical.
- B. Crayons are not used in statistics.
- C. The question is too easy for a statistical question.
- D. There is no error; the reasoning is correct.

4) A container has 15 balls: 5 red, 4 blue, 3 yellow, and 3 green. If one ball is drawn at random, what is the probability it is **not** red?

- A.  $\frac{2}{3}$
- B.  $\frac{2}{5}$
- C.  $\frac{1}{3}$
- D.  $\frac{1}{5}$

5) A student writes the following from a stem-and-leaf plot: "Stem 3 has leaves 1, 2, 4, 5, so the values are 31, 32, 34, 35." Is this interpretation correct?

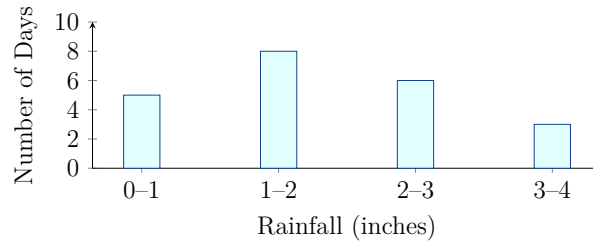
- A. Yes, the interpretation is correct
- B. No; the stems should be ordered first
- C. No; the leaves should represent a different place value
- D. No; there is no error



Scan me!  
For more practice  
& answers



- 5) A histogram displays rainfall data with bins: 0–1 inch: 5 days; 1–2 inches: 8 days; 2–3 inches: 6 days; 3–4 inches: 3 days. What is the most common rainfall range?



- A. 0–1 inch                       C. 2–3 inches  
 B. 1–2 inches                     D. 3–4 inches
- 6) What is the least integer that is at least 25?

- 7) A scientist records water temperature (°C) in two lakes over 10 days:

Lake	Mean	Median
Lake A	20	20
Lake B	20	18

What can be inferred about the two lakes?

- A. Lake A has some very warm days pulling the mean up       C. Lake B has some unusually warm days  
 B. Lake B is more stable     D. Both lakes have identical temperature patterns

**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.**



## Montana Practice Test Answers and Explanations

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

### Practice Test 1 Answers and Explanations

- Choice A is correct.** **(6.NS.4)** Distributive property:  $11(2 + 5) = 11 \cdot 2 + 11 \cdot 5 = 22 + 55 = 77$ . Choice A shows the expanded form before combining.
- Choice C is correct.** **(6.RP.2)**  $\frac{18}{20} = \frac{90}{100} = 90\%$  (multiply numerator and denominator by 5).
- Choice C is correct.** **(6.RP.1)** Percent increase is  $\frac{75000}{500000} = \frac{75}{500} = \frac{3}{20} = 0.15 = 15\%$ .
- Choice D is correct.** **(6.EE.9)** Friend X's income:  $\$500 \div 0.50 = \$1000$ . Friend Y's income:  $\$600 \div 0.40 = \$1500$ . Friend Y's income (\$1500) is higher.
- Choice C is correct.** **(6.RP.1)** Simplify the first ratio in the pair:  $4 : 8$  becomes  $1 : 2$ . Since  $1 : 2$  is not the same as  $1 : 3$ , this pair is not equivalent.
- The correct answer is 15%.** **(6.NS.3)** Move the decimal two places right:  $0.15 = 15\%$ .
- Choice D is correct.** **(6.RP.1)** Almonds are the 4-part amount, and  $12 \div 4 = 3$ , so each part is 3 oz. Raisins are  $3 \times 3 = 9$  oz and chips are  $5 \times 3 = 15$  oz; together that is 24 oz.
- Choice C is correct.** **(6.RP.2)** Option C compares boys to girls, which are both types of people (same category), so it is a ratio, not a rate. Options A, B, and D all compare quantities with different units (laps/time, loaves/time, miles/time), making them rates.
- Choice B is correct.** **(6.RP.2)** Extra Virgin:  $\$12.75 \div 25.5 = \$0.50/\text{oz}$ . Pure:  $\$24.48 \div 51 = \$0.48/\text{oz}$ . Light:  $\$34.00 \div 68 = \$0.50/\text{oz}$ . Pure has the lowest unit price.
- Choice C is correct.** **(6.RP.3)** The ratio is  $5 : 50$  or  $1 : 10$ . For 15 miles:  $15 \times 10 = 150$  minutes.
- Choice B is correct.** **(6.RP.3)** All these points lie on a straight line passing through  $(0, 0)$  because the ratio is constant (12 dollars per hour). Proportional relationships always graph as straight lines through the origin.
- Choice A is correct.** **(6.RP.3)** Unit cost:  $2 \div 8 = 0.25$  per apple. For 20 apples:  $0.25 \times 20 = 5$  dollars. Her cross-multiplication approach also gives  $2 \times 20 \div 8 = 40 \div 8 = 5$ .
- Choice D is correct.** **(6.RP.1)** After 4 days:  $5 \times 4 = 20$  mL taken. Remaining:  $30 - 20 = 10$  mL. Convert:  $10 \div 1000 = 0.01$  liters.
- Choice D is correct.** **(6.SP.4)** If Food : Rent =  $2 : 5$  and Food = \$300, then  $\frac{\$300}{\text{Rent}} = \frac{2}{5} \Rightarrow \text{Rent} = \frac{\$300 \times 5}{2} = \$750$ .
- Choice C is correct.** **(6.EE.9)** The relationship is proportional because the ratio visits/days is constant:  $100/1 = 200/2 = 300/3 = 100$ . A constant increase alone is not enough to prove proportionality, but the constant ratio confirms it here.
- Choice D is correct.** **(6.RP.3)** Actual side:  $2 \times 10 = 20$  feet. Area:  $20 \times 20 = 400$  sq ft.
- Choice C is correct.** **(6.NS.1)**  $\frac{5}{6} \div \frac{1}{6} = \frac{5}{6} \times 6 = 5$ .
- The correct answer is Total surface area is  $340 \text{ cm}^2$  and the formula  $2(10)(8) + 2(10)(5) + 2(8)(5)$  is correct.** **(6.G.4)** Total surface area is  $2(10)(8) + 2(10)(5) + 2(8)(5) = 160 + 100 + 80 = 340 \text{ cm}^2$ , so B and C are correct. The lateral surface area is  $180 \text{ cm}^2$ , not  $200 \text{ cm}^2$ , and the two  $10 \times 5$  faces have area  $100 \text{ cm}^2$ , not  $120 \text{ cm}^2$ .
- Choice A is correct.** **(6.NS.2)** Check by multiplying and adding the remainder:  $22 \times 194 = 4,268$ , and  $4,268 + 16 = 4,284$ . The remainder 16 is less than 22, so Mika's answer is correct.
- Choice D is correct.** **(6.NS.3)** 0.5 has 1 place and 0.04 has 2 places, giving  $1 + 2 = 3$  places total: 0.020.
- Choice C is correct.** **(6.NS.4)** Factors of 28: 1, 2, 4, 7, 14, 28. Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42. Common factors: 1, 2, 7, 14. GCF is 14.
- Choice C is correct.** **(6.NS.5)** Reading the number line from left to right shows the order:  $-3$  is the smallest, then 0, then 2 is the largest. So  $-3 < 0 < 2$ .
- The correct answer is 71.5.** **(6.SP.4)** In order: 67, 68, 71, 72, 74, 75. With 6 values, the median is the average of the 3rd and 4th values:  $(71 + 72)/2 = 71.5$ .



Notes From the Math Gardener

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## Hi, Math Gardener!

◇ Look at how much you grew! 5 tests is like 5 weeks of taking care of your math garden. Every problem was a seed. Every try was water. ◇

★ **Gardeners say:** growth takes time. You can't see roots, but they are there. You can't always feel smarter, but you are. Your math garden is full! ★

### Garden Check-Up

- **Roots:** STRONG! Your basic math is solid.
- **Stems:** STURDY! You can do step-by-step problems.
- **Leaves:** GREEN! You have lots of math tools.
- **Flowers:** BRIGHT! You feel proud of your work.

**Gardener tip:** keep watering your math garden long after the test. Every habit you built will grow with you for years!

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 Gardener

# PRACTICE MORE. ACHIEVE MORE.

This book provides **5 full-length Math practice tests** designed to help Grade 6 students strengthen their skills, build confidence, and excel on standardized assessments.

Each test is carefully crafted to reflect the latest standards and covers a wide range of math topics with realistic questions and detailed answer explanations.



#### BUILD CONFIDENCE

Practice builds familiarity and reduces test anxiety.



#### IMPROVE ACCURACY

Sharpen skills and avoid common mistakes.



#### ACHIEVE SUCCESS

Consistent practice leads to greater results.

## WHAT'S INSIDE?



#### 5 Full-Length Practice Tests

Realistic tests designed to mirror actual exam conditions.



#### Realistic Questions

A variety of question types to strengthen problem-solving skills.



#### Answer Keys & Explanations

Detailed solutions to help students learn and improve.



#### Performance Tracking

Track progress and identify areas that need improvement.



#### Comprehensive Coverage

All essential topics aligned with Grade 6 math standards.



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