

# 3

# Massachusetts

# MICAS

GRADE

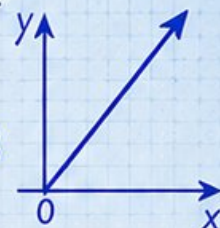
# 6

MATH

# PRACTICE TESTS

Standards Aligned Problem Solving  
For Comprehensive Assessment Programs

$$y = 2x + 3$$



$$\frac{3}{5} + \frac{2}{10} = \frac{8}{10} = \frac{4}{5}$$

$$36\% \text{ of } 150 = ?$$



## 3 | PRINTED TESTS



## 2 | ONLINE TESTS



Build Confidence



Master Key Math Skills



Answer Explanations for Every Question

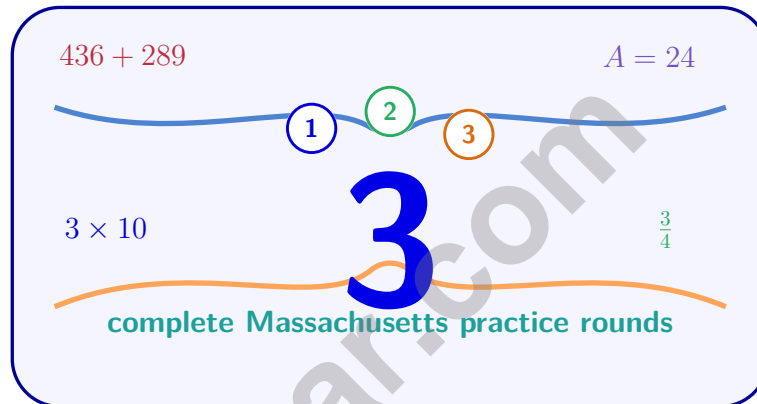


Test-Taking Strategies That Work

USE THESE TWO  
ADDITIONAL ONLINE  
PRACTICE TESTS  
FOR EXTRA REVIEW AFTER  
THE PRINTED TESTS  
IN THIS BOOK.

# 3 Massachusetts MCAS Grade 6 Math Practice Tests

*Standards-Aligned Bay State Math Accuracy for Massachusetts Comprehensive Assessment System*



Three complete 40-question Grade 6 practice rounds for MCAS, built for Bay State math accuracy 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, Massachusetts Math Explorer!

Three focused rounds using Bay State math accuracy

This book gives you three full Grade 6 practice tests for MCAS. Each round uses historic streets, harbor routes, and exact problem reading as a fresh mental backdrop while you read closely, choose a smart strategy, show your work, and check whether your answer makes sense.

## Your Massachusetts Practice Promise

Read like a scholar and solve like a planner: define the task, show work, and check.

Read

Plan

Check

## How to Use This Book

A three-session routine for Bay State math accuracy

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

**Massachusetts review rhythm:** Complete a round, study the explanation, and write one correction rule for the next test.



## What Is Inside?

Three MCAS tests, 120 questions, and a full review path

| Part         | What You Will Practice  |
|--------------|---|
| Tests 1–2    | Foundation rounds for ratios, rational numbers, operations, and careful reading.                  |
| Test 3       | Final stamina round for expressions, equations, geometry, data, problem models, and mixed review. |
| Answer Pages | Compact keys and explanations that show why each answer works.                                    |

The tests are mixed on purpose. Bay state math accuracy 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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1) A toy that costs \$24 is bought at 20% off. What is the final price?

A. \$4.80

C. \$14.40

B. \$9.60

D. \$19.20

2) In a student club, the ratio of 6th graders to 7th graders is 4 : 6. If there are 12 sixth graders, how many seventh graders are in the club?

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

A. 18%

C. 90%

B. 80%

D. 95%

4) What is the prime factorization of 50?

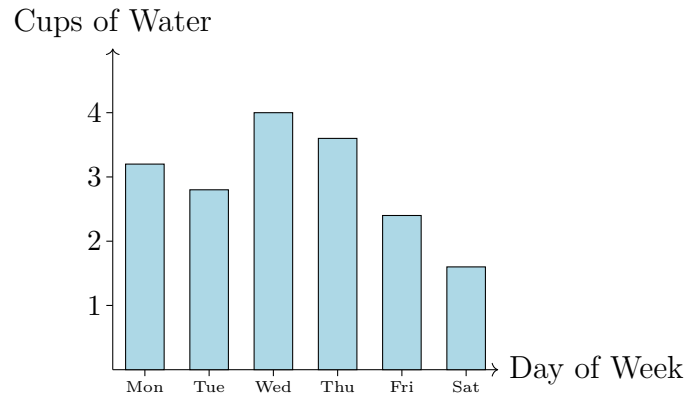
A.  $2 \times 25$

C.  $5 \times 10$

B.  $2 \times 5^2$

D. 50





5)

This bar graph shows how many cups of water a student drank each day. On which day did the student drink the MOST water?

- A. Monday
  C. Thursday  
 B. Friday
  D. Wednesday
- 6) A coordinate plane shows points representing a proportional relationship between yards and meters. One point is  $(3, 2.74)$  and another is  $(6, 5.48)$ . Are these points on the same proportional line? Which statement is correct?
- A. No, because the x-coordinates are different  
 B. No, because the y-coordinates are different  
 C. No, because both coordinates must be whole numbers  
 D. Yes, because  $\frac{2.74}{3} \approx \frac{5.48}{6} \approx 0.91$
- 7) A recipe for 4 servings uses 2 cups of rice. How much rice is needed for 10 servings?
- A. 4 cups
  C. 5 cups  
 B. 4.5 cups
  D. 6 cups



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8) A pencil is 150 millimeters long. How many centimeters long is the pencil? (Use 1 centimeter = 10 millimeters.)

- A. 15 cm                                       C. 1.5 cm  
 B. 1500 cm                                    D. 150 cm

9) Omar is comparing two sizes of juice. Small bottle: 16 oz for \$3.20. Large bottle: 20 oz for \$5.00. He says the large bottle is the better deal because it has more ounces. What is his error?

- A. He forgot to calculate unit price       D. He compared ounces instead of dollars  
 B. He confused price with size  
 C. He added instead of divided

10) A table shows inches and centimeters. Which statement about the proportional constant is true?

|                    |      |      |      |
|--------------------|------|------|------|
| <b>Inches</b>      | 1    | 5    | 10   |
| <b>Centimeters</b> | 2.54 | 12.7 | 25.4 |

- A. The constant is 2.54 cm per inch       C. The constant is 0.4 cm per inch  
 B. The constant is 12.7 cm per inch       D. The constant is 10 cm per inch

11) A teen allocates allowance as: \$20 for savings (20%), \$30 for entertainment (30%), \$15 for gifts (15%), and the rest for snacks. How much total allowance does the teen receive?

- A. \$50     C. \$125  
 B. \$75     D. \$100



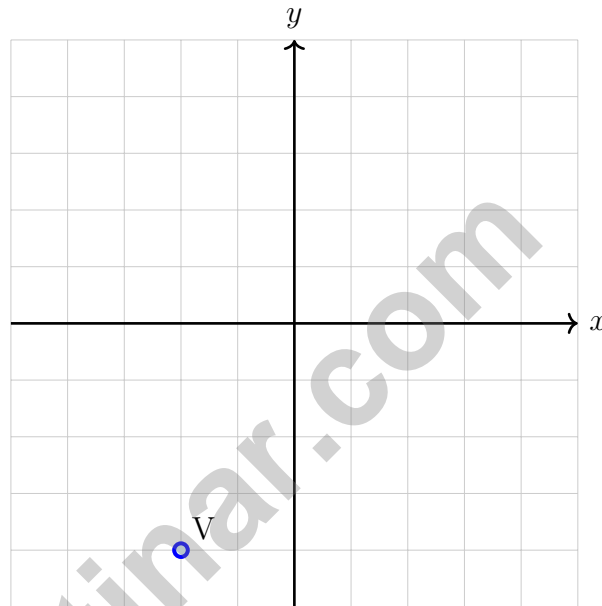
1) Calculate the MAD for the data: 1, 3, 5, 7, 9. (Mean = 5)

A. 2

C. 3

B. 2.4

D. 5



2)

Point  $V$  is at  $(-2, -4)$ . It is reflected over the  $x$ -axis. What are the coordinates of  $V'$ ?

A.  $(-2, 4)$

C.  $(2, 4)$

B.  $(2, -4)$

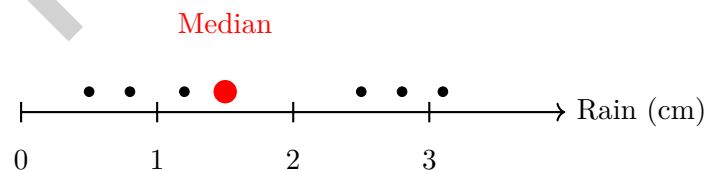
D.  $(-2, -4)$



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- 3) A circle has a diameter of 12 inches. What is the radius?
- A. 3 inches                       C. 12 inches  
 B. 6 inches                       D. 24 inches
- 4) A question expects variability and requires collecting data from multiple sources. Which word BEST describes this question?
- A. Factual                       C. Quick  
 B. Simple                       D. Statistical
- 5) Plot A shows: 3, 4, 5, 6, 7. Plot B shows: 2, 5, 5, 5, 8. Which has the smaller median?
- A. Plot A                       C. Cannot be determined  
 B. Plot B                       D. Both have the same median
- 6) Find the volume of a rectangular prism with dimensions  $\frac{3}{2}$  cm, 6 cm, and  $\frac{8}{3}$  cm.

- 7) A dot plot shows rainfall (cm) for 7 days: 0.5, 0.8, 1.2, 1.5, 2.5, 2.8, 3.1. Which represents the median?

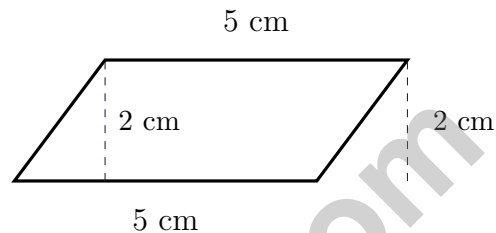


- A. 0.8                       C. 2.5  
 B. 1.9                       D. 1.5



- 1) A student receives a monthly allowance of \$360. She allocates: 40% to savings, 35% to entertainment, 15% to gifts, and the remainder to snacks. How much does she spend on snacks?

- A. \$18                                       C. \$54  
 B. \$36                                       D. \$126



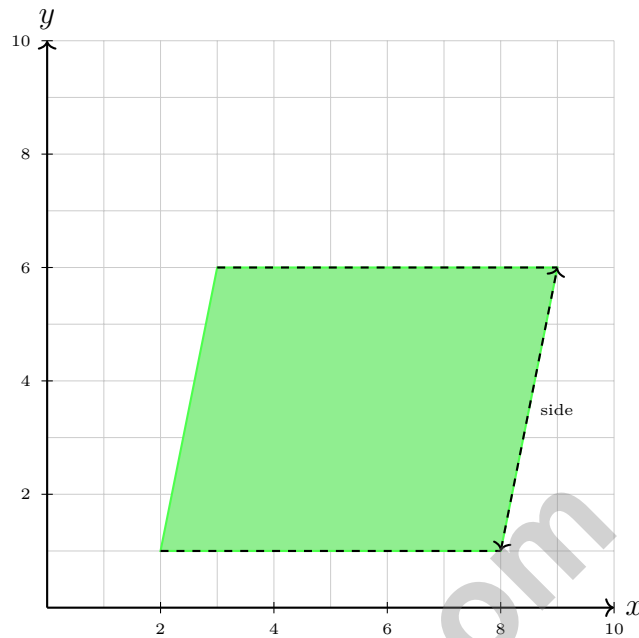
2)

The trapezoid has both bases labeled as 5 cm and a height of 2 cm. What is the area?

- A.  $5 \text{ cm}^2$                                        C.  $12 \text{ cm}^2$   
 B.  $20 \text{ cm}^2$                                        D.  $10 \text{ cm}^2$
- 3) A rectangular prism has length 4 ft, width 3 ft, and height  $2\frac{1}{2}$  ft. What is its volume?
- A.  $9.5 \text{ ft}^3$                                        C.  $30 \text{ ft}^3$   
 B.  $24 \text{ ft}^3$                                        D.  $60 \text{ ft}^3$
- 4) A quadrilateral has vertices at (0, 2), (4, 2), (4, 5), and (0, 5). What is its perimeter?
- A. 9 units                                       C. 14 units  
 B. 12 units                                       D. 18 units



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& answers



5)

A parallelogram has vertices at  $(2, 1)$ ,  $(8, 1)$ ,  $(9, 6)$ , and  $(3, 6)$ . The base is 6 units and the height is 5 units. What is its area?

- A. 30 square units       C. 40 square units  
 B. 35 square units       D. 42 square units

6) A rectangular prism is twice as long, twice as wide, and twice as tall as another rectangular prism. How many times larger is the surface area?

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



**Massachusetts MCAS Practice Test Answer Keys**

**How to use this Massachusetts MCAS 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 Bay State math accuracy
3. rework the problem before reading the full explanation, using this reminder:  
Read like a scholar and solve like a planner: define the task, show work, and check.

**A calm Massachusetts correction routine turns every missed item into useful practice. Complete a round, study the explanation, and write one correction rule for the next test.**



## Massachusetts Practice Test Answers and Explanations

Review the three printed MCAS tests with accurate, reflective, and ready for the next page habits.

### Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (6.RP.A.3)  $20\%$  of  $\$24 = 0.20 \times 24 = \$4.80$ . Final price is  $\$24 - \$4.80 = \$19.20$ .
- 2) **The correct answer is 18.** (6.RP.A.3) The ratio of sixth graders to seventh graders is  $4 : 6$ , which simplifies to  $2 : 3$ . If 2 parts are 12 students, each part is 6, so seventh graders are  $3 \times 6 = 18$ .
- 3) **Choice C is correct.** (6.RP.A.3)  $\frac{18}{20} = \frac{90}{100} = 90\%$  (multiply numerator and denominator by 5).
- 4) **Choice B is correct.** (6.NS.B.4)  $50 = 2 \times 25 = 2 \times 5 \times 5 = 2 \times 5^2$ . Options A and C use composite numbers; D is not factored.
- 5) **Choice D is correct.** (6.RP.A.3) The tallest bar corresponds to Wednesday, with a height of 4 cups, the highest among all days.
- 6) **Choice D is correct.** (6.RP.A.3) Both points have the same unit rate (constant of proportionality):  $\frac{2.74}{3} \approx 0.913$  meters per yard and  $\frac{5.48}{6} \approx 0.913$  meters per yard. The points are collinear and proportional.
- 7) **Choice C is correct.** (6.RP.A.3) Unit rate:  $2 \div 4 = 0.5$  cups per serving. For 10 servings:  $0.5 \times 10 = 5$  cups.
- 8) **Choice A is correct.** (6.RP.A.2) Divide:  $150 \div 10 = 15$  cm.
- 9) **Choice A is correct.** (6.SP.B.4) Compare unit prices instead of just sizes. Small:  $\$3.20 \div 16 = \$0.20$  per oz. Large:  $\$5.00 \div 20 = \$0.25$  per oz. The small bottle is actually cheaper per ounce, so Omar's mistake was choosing without calculating the unit price.
- 10) **Choice A is correct.** (6.EE.C.9) The constant of proportionality is  $k = \text{centimeters/inches} = 2.54/1 = 12.7/5 = 25.4/10 = 2.54$  cm per inch.
- 11) **Choice D is correct.** (6.EE.C.9) Savings is 20% of total, and savings amount is \$20. Total:  $\$20 \div 0.20 = \$100$ .
- 12) **Choice D is correct.** (6.RP.A.3) Multiply:  $6 \text{ cm} \times 0.5 \text{ m/cm} = 3 \text{ m}$ .
- 13) **Choice B is correct.** (6.NS.A.1)  $\frac{7}{12} \times \frac{8}{7} = \frac{56}{84} = \frac{2}{3}$ .
- 14) **Choice A is correct.** (6.NS.B.2)  $3,564 \div 12 = 297$ . Check:  $12 \times 297 = 3,564$ .
- 15) **Choice D is correct.** (6.NS.B.3) Multiply:  $3.8 \times 2 = 7.6$  liters.
- 16) **Choice D is correct.** (6.NS.B.4) The greatest common factor of 16 and 32 is 16. Factoring out 16 gives  $16 + 32 = 16(1 + 2)$ .
- 17) **The correct answer is 60 items per box.** (6.RP.A.2) Divide total items by number of boxes:  $480 \div 8 = 60$  items per box.
- 18) **The correct answer is  $4 : 6 = 2 : 3$  (dividing by 2) and  $4 : 6 = 8 : 12$  (multiplying by 2).** (6.RP.A.3) Nice checking: Choice A works because  $4 : 6$  simplifies to  $2 : 3$ , and Choice B works because multiplying both parts of  $4 : 6$  by 2 gives  $8 : 12$ . The other choices change the relationship.
- 19) **Choice C is correct.** (6.NS.C.5) Opposites are numbers that are the same distance from zero but on opposite sides. 6 is 6 units right of zero, and  $-6$  is 6 units left of zero, making them opposites.
- 20) **Choice C is correct.** (6.SP.B.4)  $|-5| = 5$ ,  $|-3| = 3$ ,  $|2| = 2$ . So  $5 + 3 - 2 = 6$ .
- 21) **Choice A is correct.** (6.SP.B.4) Point J is located at  $-0.8$ , which equals  $-\frac{8}{10} = -\frac{4}{5}$ .
- 22) **Choice C is correct.** (6.NS.C.8) All points on the  $y$ -axis, including the positive  $y$ -axis, have  $x = 0$ .
- 23) **The correct answer is \$1.50.** (6.NS.A.1)  $\$9 \div 6 = \$1.50$  per muffin. Accept 1.5 as equivalent.
- 24) **Choice C is correct.** (6.NS.C.7) From coldest to warmest:  $-8 < -5 < 2$ .
- 25) **Choice C is correct.** (6.NS.C.8) Same  $y$ -coordinate:  $|9 - 3| = 6$  units. Distance:  $6 \times 100 = 600$  meters.
- 26) **Choice A is correct.** (6.NS.B.3) Increases by means adding. Start at  $-8$  and add 15:  $-8 + 15 = 7^\circ\text{C}$ .



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& answers

Captain's Log

---

## Ahoy, Math Sailor!

◇ You sailed through 3 full tests. Some waters were calm. Some waters were rough. You kept your boat steady the whole way. ◇

★ **Captain's truth:** good sailors stay calm. They use the wind. They check the map. You did all those things on every test. ★

### Sailor's Skills

- **Steady Hand:** You stay calm even when problems are tricky.
- **Map Skills:** You read each problem carefully.
- **Brave Spirit:** You believe in yourself.
- **Safe Harbor:** You finish what you start.

**Captain's tip:** on test day, sail steady. Trust the map you built through 3 practice tests. You will reach safe harbor!

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 Captain

# PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 3 full-length Math practice tests and 2 online tests to help Grade 6 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:

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



## 2 ONLINE TESTS

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



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FOR MORE PRACTICE TESTS  
AND LEARNING RESOURCES



PRACTICE  
REGULARLY



STAY  
FOCUSED



SOLVE  
CONFIDENTLY



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BRIGHTLY

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