

# 4 Massachusetts MCAS

GRADE  
**6**  
MATH

## PRACTICE TESTS

Standards Aligned Problem Solving  
For Comprehensive Assessment Programs

**4**

PRINTED  
TESTS



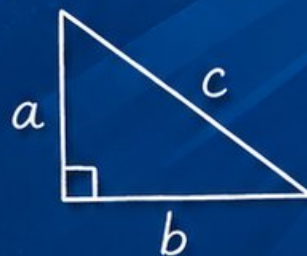
**2**

ONLINE  
TESTS



- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work

$$2x + 5 = 21$$
$$x = 8$$



$$\frac{3}{4} + \frac{1}{2} = \frac{5}{4}$$

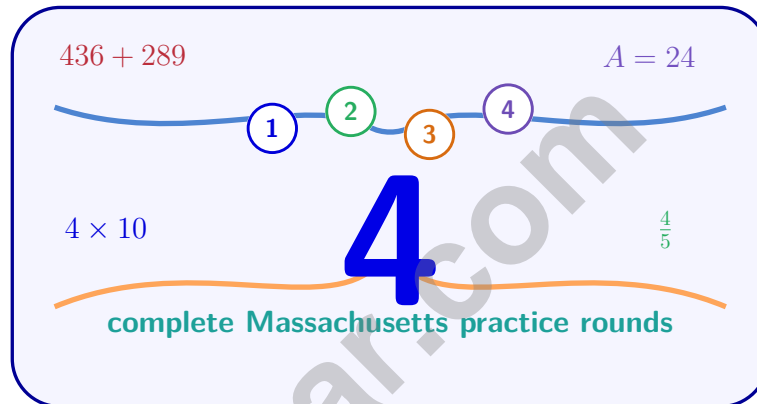


USE THESE TWO  
**ADDITIONAL ONLINE  
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER  
THE PRINTED TESTS  
IN THIS BOOK.

# 4 Massachusetts MCAS Grade 6 Math Practice Tests

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



Four 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!

Four focused rounds using Bay State math accuracy

This book gives you four 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 four-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?

Four MCAS tests, 160 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 and final stamina rounds with expressions, equations, geometry, data, and problem models.
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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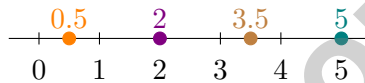
1) An error was made: a student calculated  $(-5) \times (-6)$  and got  $-30$ . What is the correct answer?

- A.  $-30$  (student is correct)       C.  $11$  (student added instead)  
 B.  $30$  (student forgot sign rule)       D.  $1$  (student subtracted instead)

2) A point on the  $y$ -axis must have which coordinate equal to zero?

- A. The  $x$ -coordinate       C. Both coordinates  
 B. The  $y$ -coordinate       D. Neither (the origin only)

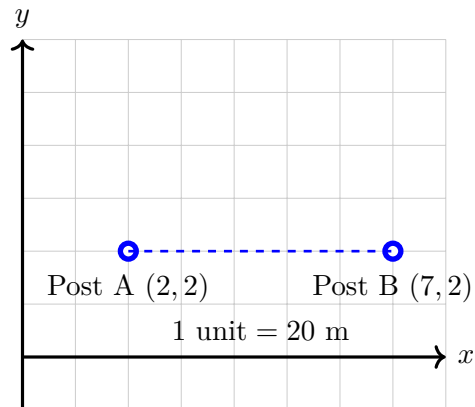
3)



All shown numbers are in order. Which could be added between 2 and 3.5?

- A.  $1.5$        C.  $5.5$   
 B.  $3$        D.  $0.25$





4)

Two fence posts are located at  $(2, 2)$  and  $(7, 2)$  on a map. If each unit equals 20 meters, what is the actual distance between the posts?

- A. 80 m                       C. 120 m  
 B. 140 m                     D. 100 m

5) Which pair of integers are 5 units apart on a number line?

- A.  $-8$  and  $-3$                        C.  $-4$  and  $2$   
 B.  $2$  and  $8$                            D.  $1$  and  $5$

6) A rectangular garden measures 20 m by 8 m. A parallelogram-shaped herb garden has a base of 20 m but a height of 6 m. How much larger is the rectangular garden?

- A.  $20 \text{ m}^2$                                C.  $60 \text{ m}^2$   
 B.  $40 \text{ m}^2$                                D.  $80 \text{ m}^2$

7) A rectangular prism has a base area of  $18 \text{ cm}^2$  and height 4 cm. What is the volume?

- A.  $22 \text{ cm}^3$                                C.  $54 \text{ cm}^3$   
 B.  $36 \text{ cm}^3$                                D.  $72 \text{ cm}^3$

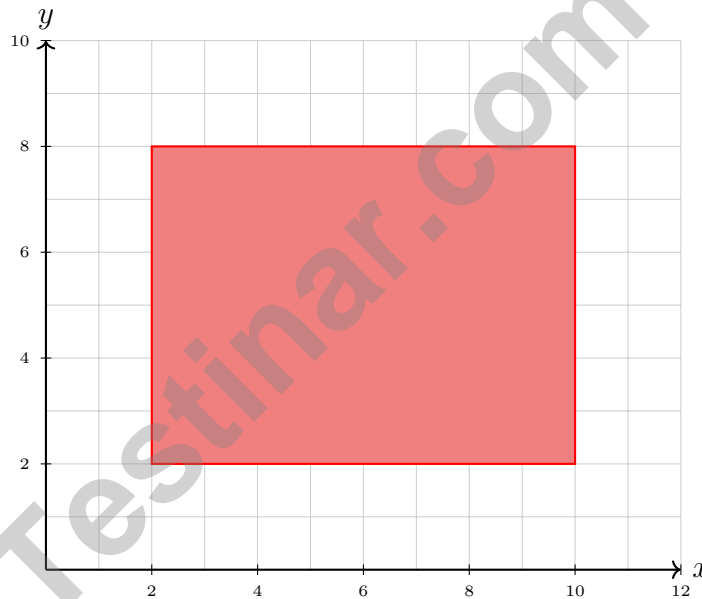


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8) A triangle has vertices at  $(0, 0)$ ,  $(6, 0)$ , and  $(3, 4)$ . What is the length of the base?

- A. 4 units                       C. 6 units  
 B. 5 units                       D. 7 units

9) A  $10 \times 10$  grid has 52 shaded squares. What percent of the grid is shaded?



10)

Which rectangle has the same area as a rectangle with vertices at  $(2, 2)$ ,  $(10, 2)$ ,  $(10, 8)$ , and  $(2, 8)$ ?

- A. Vertices at  $(1, 1)$ ,  $(13, 1)$ ,  $(13, 7)$ ,  $(1, 7)$                        C. Vertices at  $(1, 1)$ ,  $(9, 1)$ ,  $(9, 9)$ ,  $(1, 9)$   
 B. Vertices at  $(3, 1)$ ,  $(15, 1)$ ,  $(15, 5)$ ,  $(3, 5)$                        D. Vertices at  $(2, 1)$ ,  $(14, 1)$ ,  $(14, 7)$ ,  $(2, 7)$

1) Solve for  $x$ :  $\frac{x}{9} = 3$

A.  $x = 3$

C.  $x = 27$

B.  $x = 12$

D.  $x = 0.33$

2) Which statement about the question “What is the typical age of a sixth grader in my school?” is true?

A. It is not statistical because ages are similar.

C. It cannot be answered by survey.

B. It is statistical and requires collecting age data from students.

D. It has only one correct answer.

3) Use the box plot below to find the range of the entire dataset:



A. 1.5

C. 4.5

B. 2

D. 7.5

4) Two classes recorded the time (in seconds) each student spent on a warm-up. Summary statistics:

Class	Mean	Median	Range	IQR
Class A	45	42	30	12
Class B	48	50	25	8

Which class had more consistent times?

A. Class A

C. Both had the same variability.

B. Class B

D. Cannot be determined.



- 5) Which event is **certain** to happen?
- A. Rolling a number greater than 6 on a standard die.
- B. Drawing a card from a deck and it being a heart.
- C. Flipping a coin and it landing on heads or tails.
- D. Picking a red apple from a mixed fruit bowl.
- 6) 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
- 7) A circle graph shows that 40% of 250 students prefer pizza for lunch. How many students prefer pizza?
- A. 40
- B. 75
- C. 100
- D. 150
- 8) If 60 out of 200 students walk to school, what percent walk?
- A. 6%
- B. 20%
- C. 30%
- D. 60%
- 9) A bakery uses 15 kilograms of flour. Of this, 60% is used for bread. How many kilograms are used for bread?
- A. 6 kg
- B. 15 kg
- C. 12 kg
- D. 9 kg



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- 1) A garden has 4 red flowers and 6 yellow flowers. Which statement correctly describes the ratio of red to yellow flowers?
- A. For every 2 red flowers there is 1 yellow flower.
- B. For every 1 red flower there are 2 yellow flowers.
- C. For every 2 red flowers there are 3 yellow flowers.
- D. For every 3 red flowers there are 4 yellow flowers.
- 2) An orchard has 3,920 apples to pack into crates of 20 apples each. How many crates are needed?
- A. 196
- B. 200
- C. 204
- D. 210
- 3) Divide:  $0.84 \div 0.7$
- A. 1.2
- B. 0.12
- C. 12
- D. 1.54
- 4) The table shows  $h = 2, 4, 6$  and  $s = 8, 16, 24$ . What is the constant of proportionality?
- 
- 5) What is the GCF of 9 and 12?
- A. 2
- B. 6
- C. 4
- D. 3



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& answers

6) Which statement is true?

A.  $-10 < -5$

C.  $-3 > -8$

B.  $-5 > 0$

D.  $0 < -1$

7) A bank statement shows two transactions: a withdrawal of \$45 and a deposit of \$28. In terms of absolute value, which transaction has the larger magnitude?

A. The withdrawal (represented as  $-45$ )

C. They have the same magnitude

D. Cannot be determined

B. The deposit (represented as 28)

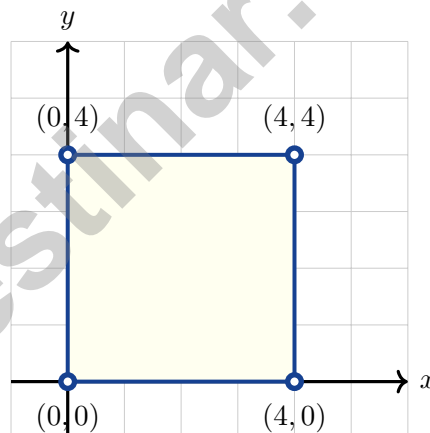
8) Compare  $-0.2$  and  $-0.02$ . Which is greater?

A.  $-0.2$

C. They are equal

B. Cannot compare

D.  $-0.02$



9)

A square has vertices at  $(0,0)$ ,  $(4,0)$ ,  $(4,4)$ , and  $(0,4)$ . What is the perimeter?

A. 12 units

C. 18 units

B. 14 units

D. 16 units



**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.**



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## Massachusetts Practice Test Answers and Explanations

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

### Practice Test 1 Answers and Explanations

- Choice B is correct.** **(6.NS.B.3)** Negative times negative is positive, so  $(-5) \times (-6) = 30$ . The student incorrectly applied the sign rule.
- Choice A is correct.** **(6.NS.C.8)** All points on the  $y$ -axis have an  $x$ -coordinate of 0, regardless of the  $y$ -coordinate value.
- Choice B is correct.** **(6.NS.C.7)** 3 is between 2 and 3.5 since  $2 < 3 < 3.5$ .
- Choice D is correct.** **(6.NS.C.8)** Distance on map:  $|7 - 2| = 5$  units. Actual distance:  $5 \times 20 = 100$  meters.
- Choice A is correct.** **(6.NS.B.3)** The distance between  $-8$  and  $-3$  is  $|-3 - (-8)| = |5| = 5$  units.
- Choice B is correct.** **(6.G.A.1)** Rectangle area =  $20 \times 8 = 160$  m<sup>2</sup>. Parallelogram area =  $20 \times 6 = 120$  m<sup>2</sup>. Difference =  $160 - 120 = 40$  m<sup>2</sup>.
- Choice D is correct.** **(6.G.A.2)**  $V = B \times h = 18 \times 4 = 72$  cm<sup>3</sup>.
- Choice C is correct.** **(6.G.A.3)** The base is horizontal from  $(0, 0)$  to  $(6, 0)$ . Length =  $6 - 0 = 6$  units.
- The correct answer is 52%.** **(6.RP.A.3)** A  $10 \times 10$  grid has 100 squares total. If 52 are shaded, the percent is  $\frac{52}{100} = 52\%$ .
- Choice B is correct.** **(6.G.A.1)** Original rectangle: width  $10 - 2 = 8$ , height  $8 - 2 = 6$ , area = 48 sq. units. Option B: width  $15 - 3 = 12$ , height  $5 - 1 = 4$ , area = 48 sq. units. Match!
- Choice A is correct.** **(6.G.A.4)** A cube has 6 equal square faces. If  $SA = 54$ , then each face has area  $54 \div 6 = 9$  cm<sup>2</sup>. Since each face is a square,  $s^2 = 9$ , so  $s = 3$  cm.
- Choice A is correct.** **(6.NS.B.4)**  $30 = 2 \times 15 = 2 \times 3 \times 5$ . The prime factors are 2, 3, 5. Option B uses 15, which is composite; C uses 10, which is composite; D gives prime factorization of 12.
- Choice C is correct.** **(6.SP.A.2)** Range depends only on the extreme values (max and min), so an outlier directly changes the range. The IQR ignores extremes, and MAD is less sensitive.
- Choice D is correct.** **(6.RP.A.3)** Misleading graphs use visual techniques (truncated axes, 3D effects, non-uniform scales) to distort perception. The data itself may be correct, but the visual misrepresents it.
- Choice D is correct.** **(6.SP.B.4)** Entertainment is 15% of the budget.  $15\% \text{ of } \$1000 = 0.15 \times 1000 = \$150$ .
- Choice B is correct.** **(6.EE.C.9)** Using  $w = 8t$  (water = 8 ounces per second): after 5 seconds,  $w = 8 \times 5 = 40$  ounces. The graph passes through the origin, not  $(0, 8)$ .
- Choice C is correct.** **(6.RP.A.3)** Multiply:  $2.5 \text{ cm} \times 4 = 10 \text{ cm}$ .
- Choice B is correct.** **(6.NS.A.1)** You are counting how many  $\frac{1}{4}$ -cup servings fit inside 2 cups—that's a division problem:  $2 \div \frac{1}{4}$ . Rewrite as  $2 \times 4$ , which equals 8 servings.
- Choice A is correct.** **(6.NS.B.2)**  $5,625 \div 45 = 125$ . Verify:  $45 \times 125 = 5,625$ .
- The correct answer is The unit rate is 25 items per hour, and the y-value when  $x = 1$  is 25.** **(6.RP.A.3)** A is correct because  $50 \div 2 = 25$  items per hour. D is correct because when  $x = 1$ ,  $y = 25$ . Choice B is false for a proportional relationship, Choice C should be  $y = 25x$ , and Choice E is false.
- Choice D is correct.** **(6.NS.B.3)** Work left to right:  $10.5 - 4.75 = 5.75$ , then  $5.75 + 2.1 = 7.85$ .
- Choice A is correct.** **(6.NS.B.4)** The rectangle shows a common factor of 6 with addends 3 and 8. The area is  $6 \times 3 + 6 \times 8 = 18 + 48 = 66 = 6(3 + 8)$ . Choice A is correct.
- Choice D is correct.** **(6.NS.C.5)** The student went from  $+25$  to  $-5$ . The change is  $-5 - 25 = -30$ , meaning the lunch cost 30 dollars.



## Hi, Math Detective!

◇ You did such a great job! You finished 4 tests like a real detective. You found the clues, used your tools, and solved the math. ◇

★ **Detectives know:** good work takes time. You took your time. You looked carefully. You found the answers! ★

### Your Detective Skills

- **Sharp Eyes:** You notice the small details.
- **Smart Plans:** You pick the right way to solve.
- **Brave Heart:** You try even when it's tricky.
- **Steady Work:** You finish what you start.

**Detective tip:** on test day, look carefully at each problem. Underline important words. Then solve like the detective you are!

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 Detective Helper

# PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 4 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:

**4** 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.



**VISIT [TESTINAR.COM/MATH6](https://www.testinar.com/math6)**  
FOR MORE PRACTICE TESTS  
AND LEARNING RESOURCES



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