

# 10

# Massachusetts MCAS

GRADE  
**6**  
MATH

## PRACTICE TESTS

Standards-Aligned Review  
Mixed Practice & Answer Key



### 10 PRINTED TESTS

Realistic practice to build confidence and mastery



### 2 ONLINE TESTS

Extra practice for continued success



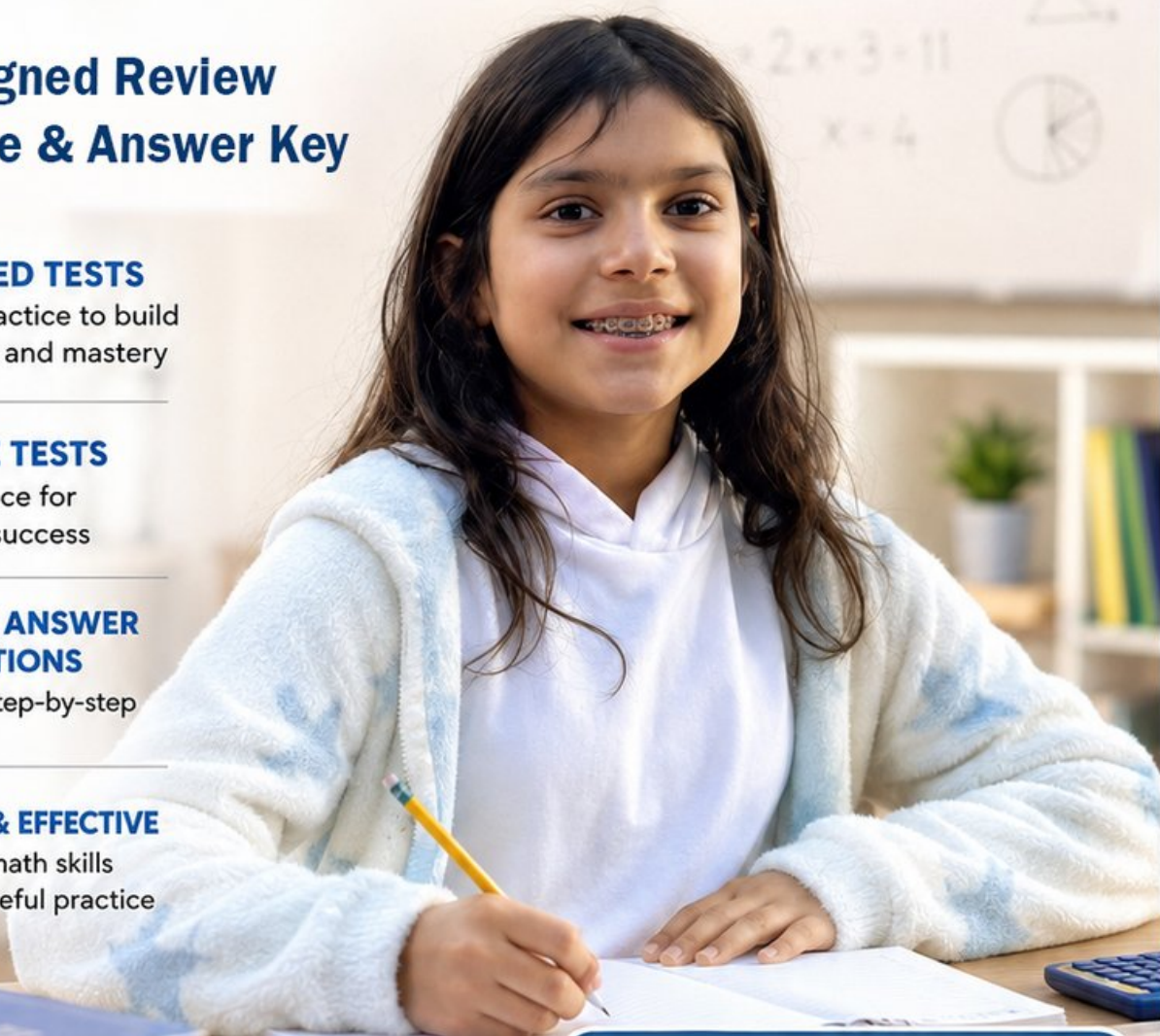
### DETAILED ANSWER EXPLANATIONS

Learn with step-by-step solutions



### FOCUSED & EFFECTIVE

Target key math skills with purposeful practice



**10** PRINTED TESTS  
**+ 2** ONLINE TESTS

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

**PRACTICE • REVIEW • SUCCEED**

# 10 Massachusetts MCAS Grade 6 Math Practice Tests

*Standards-Aligned Careful Scholar Reasoning for Massachusetts Comprehensive Assessment System*



Ten complete 40-question Grade 6 practice rounds for MCAS, 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!

Ten steady rounds on a Bay State problem-solving walk

This book gives you ten full Grade 6 practice tests for MCAS. Each round uses historic streets, coastal air, and precise math thinking 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

Use exact vocabulary: ratio, rate, expression, area, or data. I will slow down for the question, circle what matters, solve one step at a time, and use mistakes as clues for getting stronger.

Read

Plan

Check

## How to Use This Book

A ten-session routine for careful scholar reasoning

1. **Preview the skills.** Read the quick review pages before the first test.
2. **Take one test at a time.** Work in a quiet place and answer all 40 questions.
3. **Mark your confidence.** Put a small star beside problems you solved with a strong plan.
4. **Check, then retry.** For missed questions, try the problem again before reading the explanation.
5. **Track your next move.** Use the growth log to name one habit and one skill for the next test.

**Massachusetts review rhythm:** Test one day, correct carefully the next day, then return for the next round when your corrections feel clear.



## What Is Inside?

Ten MCAS tests, 400 questions, and a full review path

Part	What You Will Practice
Tests 1–3	Warm-up rounds for ratios, rational numbers, operations, and careful reading.
Tests 4–6	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Tests 7–9	Stamina rounds for mixed review, neat work, and flexible strategy choices.
Test 10	Final Massachusetts round to show growth across the whole book.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Careful scholar reasoning means recognizing the skill even when the next question changes topic.

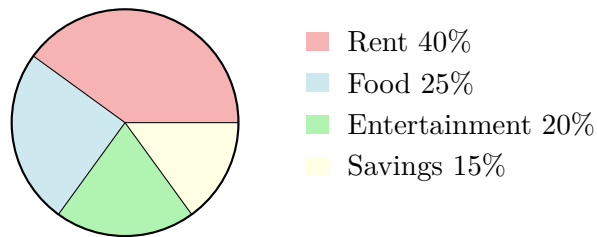


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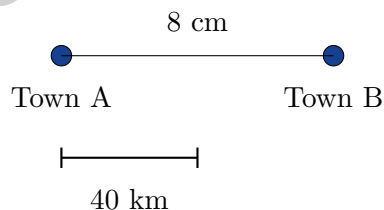
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1) The pie chart shows Diego's monthly budget allocation (total: \$1200).



How much does Diego allocate to Food?

- A. \$300                       C. \$400  
 B. \$240                       D. \$480
- 2) A teen has \$200 and plans to allocate 50% to savings, 30% to entertainment, and the remainder to miscellaneous. How much is allocated to miscellaneous?
- A. \$40                       C. \$20  
 B. \$30                       D. \$50
- 3) A map shows two towns with a distance between them. The scale bar below indicates the distance.



What is the actual distance between the towns?

- A. 80 km                       C. 160 km  
 B. 120 km                       D. 200 km



- 4) A pizza is cut into 8 slices. One slice costs \$2.50. What is the total cost of the pizza?
- A. \$18.00                       C. \$16.00  
 B. \$20.00                       D. \$22.00
- 5) A student types 180 words in 3 minutes. At this rate, how many words can the student type in 5 minutes?
- A. 200 words                       C. 300 words  
 B. 240 words                       D. 360 words
- 6) A teacher gives two quizzes to a class. Quiz 1 has a five-number summary: min = 60,  $Q_1 = 75$ , median = 82,  $Q_3 = 88$ , max = 95. Quiz 2 has: min = 65,  $Q_1 = 78$ , median = 82,  $Q_3 = 85$ , max = 92. Based on the IQR, which quiz had more consistent student performance in the middle 50%?
- A. Quiz 1 had more consistent performance.  
 B. Consistency cannot be determined from the five-number summary.  
 C. Both quizzes had the same consistency.  
 D. Quiz 2 had more consistent performance.
- 7) A dataset in a stem-and-leaf plot has 8 data points, with the median value being 67. This means:
- A. The 4th and 5th values average to 67  
 B. The 5th value is exactly 67  
 C. Half the data is above 67 and half is below  
 D. The value 67 appears twice in the data



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1) In a proportional relationship, if  $y = kx$ , what does  $k$  represent?

- A. Where the line crosses the vertical axis
- B. The constant rate of change (how much  $y$  changes for each unit of  $x$ )
- C. The independent variable
- D. The dependent variable

2) If you need a triangle with area  $120 \text{ m}^2$  and height  $15 \text{ m}$ , what base is required?

- A.  $8 \text{ m}$
- B.  $30 \text{ m}$
- C.  $20 \text{ m}$
- D.  $16 \text{ m}$

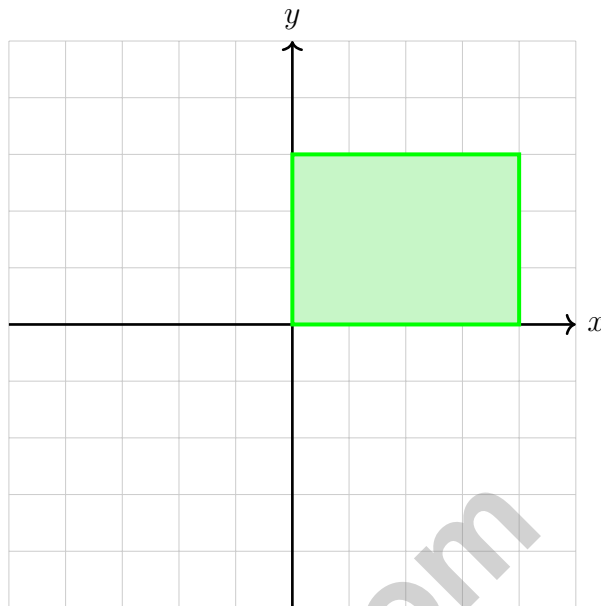
3) Find the value of  $2(p + q) - 3r$  when  $p = 4$ ,  $q = 5$ , and  $r = 2$ .

4)

Notebooks Purchased	Total Cost (\$)
3	12
5	20
8	$k$

Use the table to find the cost per notebook and calculate the value of  $k$  when 8 notebooks are purchased.





5)

A rectangle has vertices at  $(0, 0)$ ,  $(4, 0)$ ,  $(4, 3)$ , and  $(0, 3)$ . If the rectangle is translated 2 units to the left and 1 unit up, what are the new coordinates of the vertex that was originally at  $(4, 0)$ ?

6) A circular running track has a radius of 50 meters. Using  $\pi \approx 3.14$ , what is the approximate area of the track?

 A.  $157 \text{ m}^2$  B.  $314 \text{ m}^2$  C.  $7850 \text{ m}^2$  D.  $15700 \text{ m}^2$ 

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1) A bird flies 112 kilometers in 7 hours. What is the bird's speed in kilometers per hour?

- A. 14 kilometers per hour       C. 20 kilometers per hour  
 B. 16 kilometers per hour       D. 119 kilometers per hour

2) A student says "62% means  $\frac{62}{10}$ ." Is this correct?

- A. Yes, this is correct.       C. No,  $62\% = 62$ .  
 B. No,  $62\% = \frac{6.2}{10}$ .       D. No,  $62\% = \frac{62}{100}$ .

3) A graph shows the relationship between the amount of flour (in cups) and the number of muffins baked. The point (2, 24) is on the line. If the ratio is constant and starts at the origin, how many muffins can be made with 5 cups of flour?

4) Out of 250 students at a school, 30% participate in sports. How many students participate in sports?

- A. 50       C. 75  
 B. 70       D. 100



- 5) A car rental company charges \$25 per day. What is the cost for 4 days?

- 6) A submarine is at a depth of  $-250$  meters. It rises 75 meters. At what depth is the submarine now?

- 7) A car travels 120 miles in 2 hours. At the same rate, how far will it travel in 5 hours?

- A. 240 miles                       C. 360 miles  
 B. 300 miles                       D. 420 miles

- 8) A scientist needs to convert 3 meters to both centimeters and millimeters. Which statement is correct?

- A. 3 m = 300 cm and 3 m = 3,000 mm                       C. 3 m = 3,000 cm and 3 m = 3,000 mm  
 B. 3 m = 30 cm and 3 m = 300 mm                       D. 3 m = 3,000 cm and 3 m = 300,000 mm

- 9) A school is organizing sports equipment. They have 16 soccer balls and 24 basketballs. They want to distribute them equally into bins with no equipment left over. What is the maximum number of bins needed?

- A. 4 bins                                       C. 16 bins  
 B. 40 bins                                       D. 8 bins



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## Massachusetts MCAS Practice Test Answer Keys

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

1. check the answer first
2. mark questions to try again
3. rework the problem before reading the full explanation

**A calm correction routine turns every missed item into useful practice.**

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## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- Choice A is correct.** **(6.RP.A.2)** Food is 25% of the budget:  $0.25 \times \$1200 = \$300$ .
- Choice A is correct.** **(6.G.A.1)** Miscellaneous:  $100\% - 50\% - 30\% = 20\%$  of  $\$200 = 0.20 \times 200 = \$40$ .
- Choice C is correct.** **(6.SP.A.2)** The scale bar represents 2 cm = 40 km. So 8 cm =  $4 \times 40 = 160$  km.
- Choice B is correct.** **(6.NS.B.3)** Multiply:  $8 \times \$2.50 = \$20.00$ .
- Choice C is correct.** **(6.NS.A.1)** First, find the unit rate:  $180 \div 3 = 60$  words per minute. Then multiply by 5 minutes:  $60 \times 5 = 300$  words.
- Choice D is correct.** **(6.NS.B.4)** Quiz 1 IQR =  $88 - 75 = 13$ . Quiz 2 IQR =  $85 - 78 = 7$ . A smaller IQR means less variability in the middle 50%, so Quiz 2 was more consistent.
- Choice A is correct.** **(6.NS.C.8)** With 8 data points (even), the median is the average of the middle two values: positions 4 and 5. If the median is 67, then  $(value_4 + value_5)/2 = 67$ .
- Choice C is correct.** **(6.EE.A.3)** Use the ratio as a recipe: for every 1 cup of juice, there are 4 cups of water. With 8 cups of juice, multiply  $8 \times 4 = 32$  cups of water.
- Choice C is correct.** **(6.EE.B.6)** Simplify 5 : 15 by dividing both parts by 5 to get 1 : 3. That matches the phrase “for every 1 apple there are 3 oranges,” so both statements describe the same ratio.
- Choice A is correct.** **(6.EE.B.8)**  $6 \div 24 = 0.25$  cups per serving.
- Choice D is correct.** **(6.EE.C.9)** The ratio is 4 : 7. When roses are 16 (multiply by 4), daisies are  $7 \times 4 = 28$ .
- Choice A is correct.** **(6.SP.A.2)** The unit rate is  $\frac{45}{1} = 45$  miles per hour. Since the ratio is constant ( $\frac{90}{2} = 45$ ,  $\frac{135}{3} = 45$ ), the relationship is proportional. A proportional relationship through the origin has all ratios equal.
- Choice A is correct.** **(6.SP.B.5)**  $0.006 \times 100 = 0.6\%$ .
- Choice D is correct.** **(6.NS.C.7)** First shirt: \$40. Second shirt at 50% off:  $0.50 \times 40 = 20$ . Total:  $\$40 + \$20 = \$60$ .
- Choice C is correct.** **(6.NS.C.8)** Unit rate:  $6 \div \frac{1}{2} = 6 \times 2 = 12$  dollars per kilogram.
- Choice C is correct.** **(6.EE.A.3)** Reading the double number line: 2.5 kg is halfway between 2 kg (2000 g) and 3 kg (3000 g), so it equals 2500 g.
- Choice B is correct.** **(6.EE.A.4)** From the double number line: 2 meters = 6.56 feet, so  $k = 6.56/2 = 3.28$  feet per meter. This is consistent with 4 meters = 13.12 feet:  $13.12/4 = 3.28$ .
- Choice A is correct.** **(6.SP.B.4)** The correct answer is  $\frac{4}{9} \times \frac{9}{2} = \frac{36}{18} = 2$ . The student calculated  $\frac{4}{9} \times \frac{2}{9} = \frac{8}{81}$ .
- Choice B is correct.** **(6.EE.A.3)**  $6,300 \div 48 = 131$  remainder 12. So 131 shelves are filled completely.
- The correct answer is 5.** **(6.EE.B.5)**  $SA = 2LW + 2LH + 2WH = 2(11)(5) + 2(11)H + 2(5)H = 110 + 32H$ . Since  $270 = 110 + 32H$ ,  $160 = 32H$ , so  $H = 5$  cm.
- Choice D is correct.** **(6.RP.A.3)** This is a GCF problem. The GCF of 40 and 56 is 8. So they can make 8 boxes with 5 chocolate chip and 7 oatmeal cookies in each.
- The correct answer is Both A and B have volume 24.** **(6.G.A.1)** A:  $6 \times 2 \times 2 = 24$  ✓. B:  $4 \times 3 \times 2 = 24$  ✓. C:  $8 \times 3 \times 2 = 48$ . D:  $5 \times 5 \times 1 = 25$ . E:  $4 \times 4 \times 2 = 32$ . Only A and B equal 24 cubic units.
- The correct answer is 200.96.** **(6.G.A.2)** Area =  $\pi r^2 \approx 3.14 \times 64 = 3.14 \times 64 = 200.96$  ft<sup>2</sup>.
- Choice A is correct.** **(6.G.A.4)** Total change is  $(+6) + (-3) + (-2) = 6 - 3 - 2 = 1$  point, a positive change of 1 point.
- Choice C is correct.** **(6.RP.A.3)** From -6 to 6 is  $6 - (-6) = 6 + 6 = 12$  units apart.
- Choice D is correct.** **(6.SP.A.2)** Negative fractions closest to zero are greater. Order:  $-0.75 < -0.5 < -0.25 < 0$ .
- The correct answer is 2.4.** **(6.SP.A.3)** Mean =  $(6 + 8 + 10 + 12 + 14)/5 = 10$ . Deviations:  $|6 - 10| = 4$ ,  $|8 - 10| = 2$ ,  $|10 - 10| = 0$ ,  $|12 - 10| = 2$ ,  $|14 - 10| = 4$ . MAD =  $(4 + 2 + 0 + 2 + 4)/5 = 2.4$ .
- Choice A is correct.** **(6.SP.B.4)**  $5 > -3$ , so Marcus has more money.
- Choice D is correct.** **(6.SP.B.4)** The integers -7 and 7 are opposites, so  $-7 + 7 = 0$ .
- Choice B is correct.** **(6.SP.B.4)** Descending 2 meters per minute for 6 minutes:  $(-2) \times 6 = -12$  means 12 meters below.



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## Hi, Math Champion!

◇ You trained hard! 10 full practice tests is real practice. Your math game is way better now than when you started. ◇

★ **Coach's truth:** kids who practice get better. You practiced. You got better. That's how it works!  
★

### Your Game Stats

- **Energy:** HIGH! You can finish a long test.
- **Smart Plays:** You know lots of strategies.
- **Calm Head:** You stay cool with hard problems.
- **Game-Day Ready:** You feel strong and prepared.

**Coach's tip:** the night before the test, get good sleep. Eat a good breakfast. Bring a sharp pencil. Trust your training!

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 Coach

# PRACTICE MORE. ACHIEVE MORE. SUCCEED!

This **Grade 6 Math Practice Tests** book is designed to help students build strong math skills, deepen their understanding of key concepts, and gain the confidence they need to succeed on any test.

With 10 full-length printed tests and 2 online tests, students get the review, practice, and realistic test experience they need to improve accuracy, strengthen 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

★ **CONFIDENCE TODAY.  
SUCCESS 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.



### Deepen Understanding

Reinforce key math concepts aligned with standards.



### Test Confidence

Get familiar with test formats and improve accuracy.



### 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.



10 PRINTED  
PRACTICE TESTS



2 ONLINE  
PRACTICE TESTS



DETAILED ANSWER  
EXPLANATIONS