

GRADE

6

MATH

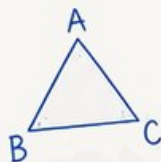
6

# Michigan M STEP

## PRACTICE TESTS

Standards-Aligned  
Steady Southern  
Problem Solving for  
Comprehensive  
Assessment Program

$$2x + 3 = 11$$



$$7^2 = 49$$

BUILD SKILLS.  
GAIN CONFIDENCE.  
**SUCCEED!**



### 6 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



### 6 PRINTED TESTS + 2 ONLINE TESTS

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



### PRACTICE

Sharpen skills with targeted practice tests



### REVIEW

Understand concepts and strengthen skills

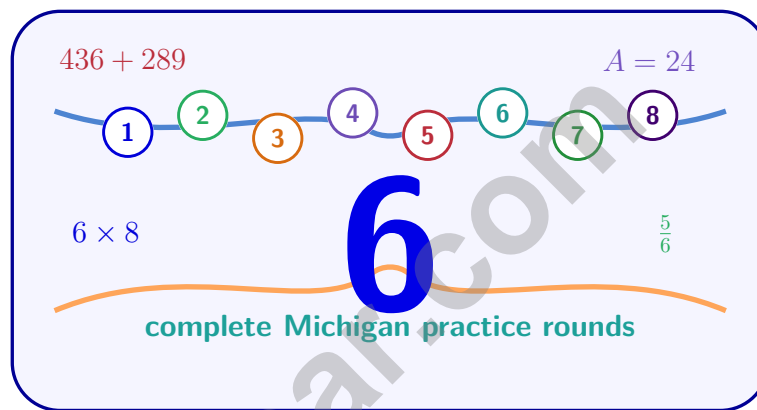


### SUCCEED

Build confidence and achieve your best

# 6 Michigan M-STEP Grade 6 Math Practice Tests

*Standards-Aligned Great Lakes Problem Solving for Michigan Student Test of Educational Progress*



Six complete 40-question Grade 6 practice rounds for M-STEP, built for Great Lakes problem solving 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, Michigan Math Explorer!

Eight focused rounds using Great Lakes problem solving

This book gives you six full Grade 6 practice tests for M-STEP. Each round uses lake shores, peninsulas, and steady route planning as a fresh mental backdrop while you read closely, choose a smart strategy, show your work, and check whether your answer makes sense.

## Your Michigan Practice Promise

Keep your thinking on course: map the facts, select the operation, and check the destination.

Read

Plan

Check

## How to Use This Book

A six-session routine for Great Lakes problem solving

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

**Michigan review rhythm:** After each round, look for patterns in mistakes and steer the next practice session toward them.



## What Is Inside?

Eight M-STEP 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 3–5	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Test 6	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. Great lakes problem solving 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 student is asked: “In a class, the ratio of girls to boys is 5 : 3. What does this mean?”

The student’s response: “There are 5 girls and 3 boys.”

Is the student’s answer correct?

- A. Yes, it is always correct.       C. No, girls outnumber boys by exactly 2 students.
- B. Yes, but only if the ratio has been simplified.       D. No, there could be 10 girls and 6 boys.

2) Which pair of numbers has a GCF of 5?

- A. 15 and 25       C. 12 and 20
- B. 10 and 20       D. 14 and 35

3) Rewrite  $3(4 + 5) + 2(4 + 5)$  by **factoring out**  $(4 + 5)$  as one product (one pair of grouped factors multiplying).

- A.  $(3 + 2)(4 + 5)$        C.  $5(14)$
- B.  $3 \cdot 4 + 3 \cdot 5 + 2 \cdot 4 + 2 \cdot 5$        D.  $(3 \times 4) + (2 \times 5)$

4) Which expression is NOT equal to the others?

- A.  $|-6|$        C.  $|6|$
- B. The opposite of  $-6$        D. The opposite of 6

5) 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)





9) Which expression correctly translates “the quotient of 14 and a number  $t$ , decreased by 3”?

A.  $\frac{14 - 3}{t}$

B.  $\frac{14}{t} - 3$

C.  $\frac{14}{t - 3}$

D.  $14 - 3t$

10) Evaluate  $9 + 3n - n$  when  $n = 2$ .

A. 8

B. 10

C. 21

D. 13

11) A teacher distributes 4 times as many pencils to a class as erasers. If there are  $e$  erasers, which expression shows the number of pencils?

A.  $4 + e$

B.  $e - 4$

C.  $e + 4$

D.  $4e$

12) Solve for  $x$ :  $x + 3.5 = 9.2$

A.  $x = 12.7$

B.  $x = 5.7$

C.  $x = 2.6$

D.  $x = 3.2$

13) A roller coaster requires riders to be at least 48 inches tall. Which inequality describes the height  $h$  (in inches) needed to ride?

A.  $h < 48$

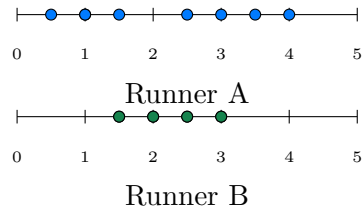
B.  $h > 48$

C.  $h \leq 48$

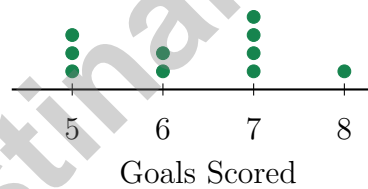
D.  $h \geq 48$



- 1) Two runners' sprint times (seconds) over 8 races. Which runner has more consistent sprint times?



- A. Runner A
  C. Both are equally consistent  
 B. Runner B
  D. Cannot determine from dot plots
- 2) A dot plot shows the number of goals scored by different soccer teams during a season. If the dot plot shows 3 teams scored 5 goals, 2 teams scored 6 goals, 4 teams scored 7 goals, and 1 team scored 8 goals, what is the total number of goals scored by all teams combined?



- A. 63 goals
  C. 75 goals  
 B. 50 goals
  D. 60 goals
- 3) To make “How old am I?” statistical, should the question ask about one person or a group?





1) Which step is correct when dividing  $\frac{2}{5} \div \frac{3}{7}$ ?

A.  $\frac{2}{5} \times \frac{3}{7}$

B.  $\frac{2}{5} \times \frac{7}{3}$

C.  $\frac{5}{2} \times \frac{3}{7}$

D.  $\frac{2}{3} \times \frac{5}{7}$

2) A jewelry maker has 0.75 kilograms of silver. How many grams of silver does she have?

A. 7.5 grams

B. 75 grams

C. 750 grams

D. 7,500 grams

3) A classroom has 10 boys and 15 girls. Which statement correctly describes a ratio in the classroom?

A. For every 2 boys there are 3 girls.

B. For every 3 boys there are 2 girls.

C. For every 5 boys there are 3 girls.

D. For every 1 boy there are 5 girls.

4) A store sells shirts regularly at \$35 each. During a clearance, they are 60% off. What is the clearance price?

A. \$14

B. \$15

C. \$20

D. \$21



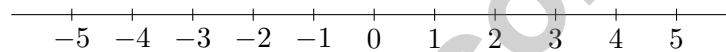
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& answers

- 5) A table shows the relationship between drawing measurements and actual measurements.

Drawing (inches)	Actual (feet)
1	8
2	16
3	?

What is the actual measurement for 3 inches on the drawing?

- A. 20 feet                       C. 30 feet  
 B. 24 feet                       D. 32 feet
- 6) Which number line correctly shows the position of  $-5$ ?



What is the correct location of  $-5$  on the number line above?

- A. Between  $-6$  and  $-4$ , closer to  $-4$      C. At the fifth tick mark to the left of zero  
 B. At the fifth tick mark to the right of zero  
 D. Exactly at zero
- 7) A jar contains 7 yellow marbles and 3 red marbles. If one marble is drawn at random, express the probability of drawing a red marble as a fraction in lowest terms.



**Michigan M-STEP Practice Test Answer Keys**

**How to use this Michigan M-STEP 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 Great Lakes problem solving
3. rework the problem before reading the full explanation, using this reminder:  
Keep your thinking on course: map the facts, select the operation, and check the destination.

**A calm Michigan correction routine turns every missed item into useful practice. After each round, look for patterns in mistakes and steer the next practice session toward them.**



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## Michigan Practice Test Answers and Explanations

Review the six printed M-STEP tests with steady, aware, and ready to keep navigating habits.

### Practice Test 1 Answers and Explanations

- Choice D is correct.** **(6.RP.A.3)** The student's answer is too specific. A ratio of 5 : 3 means for every 5 girls there are 3 boys, but scaled amounts like 10 : 6 or 15 : 9 also fit.
- Choice A is correct.** **(6.NS.B.4)** Factors of 15: 1, 3, 5, 15. Factors of 25: 1, 5, 25. Common factors: 1, 5. GCF is 5. For option B, GCF is 10; for C, GCF is 4; for D, GCF is 7.
- Choice A is correct.** **(6.NS.B.4)** Treat  $(4+5)$  like a chunky variable and slide it outside:  $3(4+5)+2(4+5) = (3+2)(4+5)$ . Choice B totals 45, but shows every miniature product—not one clean factored form. Choice C mistakenly multiplies by 14, and Choice D chops the parentheses.
- Choice D is correct.** **(6.NS.C.7c)** A:  $|-6| = 6$ . B: opposite of  $-6$  is 6. C:  $|6| = 6$ . D: opposite of 6 is  $-6$ . Options A, B, C all equal 6; D equals  $-6$ .
- 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 C is correct.** **(6.EE.A.3)** Temperature change is final minus initial:  $8 - (-3) = 8 + 3 = 11^\circ \text{C}$  (an increase of 11 degrees).
- The correct answer is 6.** **(6.EE.A.3)** Combine like terms:  $4x + 2x = 6x$ .
- Choice A is correct.** **(6.EE.A.1)**  $2^3 = 2 \times 2 \times 2 = 8$ , and  $8 \times 3 = 24$ . Option A shows this correctly in expanded form.
- Choice B is correct.** **(6.EE.A.2a)** "The quotient of 14 and  $t$ " is  $\frac{14}{t}$ . "Decreased by 3" means subtract 3:  $\frac{14}{t} - 3$ .
- Choice D is correct.** **(6.EE.A.2c)** Simplify:  $9 + 3n - n = 9 + 2n$ . Substitute  $n = 2$ :  $9 + 2(2) = 9 + 4 = 13$ .
- Choice D is correct.** **(6.EE.B.6)** "4 times as many" means multiply the number of erasers by 4:  $4e$  pencils.
- Choice B is correct.** **(6.EE.B.5)** Subtract 3.5 from both sides:  $x = 9.2 - 3.5 = 5.7$ .
- Choice D is correct.** **(6.EE.B.8)** "At least 48" means 48 or more, which is written as  $h \geq 48$ .
- The correct answer is 14.** **(6.EE.C.9)** Multiply  $2 \times 7 = 14$ .
- Choice D is correct.** **(6.EE.B.8)** A closed (filled) circle shows that the boundary value is included in the solution set, corresponding to  $\leq$  or  $\geq$  inequalities.
- Choice C is correct.** **(6.G.A.2)**  $V = 7 \times 4 \times 2.5 = 28 \times 2.5 = 70 \text{ ft}^3$ .
- Choice B is correct.** **(6.G.A.1)** Base:  $9 - 3 = 6$  units. Height:  $6 - 2 = 4$  units. Area =  $\frac{1}{2} \times 6 \times 4 = 12$  square units.
- The correct answer is Equivalent-fraction divide and reciprocal multiply.** **(6.NS.A.1)** B uses a common denominator so you are dividing same-size chunks:  $\frac{15}{18} \div \frac{6}{18} = \frac{15}{6} = \frac{5}{2}$ . C keeps  $\frac{5}{6}$  and multiplies by the reciprocal of  $\frac{1}{3}$ , which is  $\frac{3}{1}$ —that is  $\frac{5}{6} \times \frac{3}{1}$ , also simplifying to  $\frac{5}{2}$ . A never flips  $\frac{1}{3}$ , D mixes random numbers together, and E flips  $\frac{5}{6}$  instead of flipping the divisor.
- Choice C is correct.** **(6.G.A.4)** A rectangular prism net must have 6 rectangles (not necessarily squares) arranged such that opposite faces are congruent. A line of 6 identical unit squares cannot fold into a rectangular prism without severe overlap or gaps.
- Choice C is correct.** **(6.RP.A.1)** Radius  $r = \frac{20}{2} = 10$  cm. Area =  $\pi r^2 \approx 3.14 \times 10^2 = 3.14 \times 100 = 314 \text{ cm}^2$ .
- The correct answer is 130.** **(6.G.A.1)** Square area:  $10 \times 10 = 100 \text{ cm}^2$ . Triangle area:  $\frac{1}{2} \times 10 \times 6 = 30 \text{ cm}^2$ . Total:  $100 + 30 = 130 \text{ cm}^2$ .
- Choice A is correct.** **(6.SP.A.2)** The mode is the value that appears most often. The value 3 appears three times.
- Choice A is correct.** **(6.SP.B.5c)** New mean =  $\frac{78 + 82 + 85 + 88 + 95}{5} = \frac{428}{5} = 85.6$ .
- Choice C is correct.** **(6.SP.B.5c)** Distances from the mean (14):  $|10 - 14| = 4$ ,  $|12 - 14| = 2$ ,  $|14 - 14| = 0$ ,  $|16 - 14| = 2$ ,  $|18 - 14| = 4$ . MAD =  $\frac{4+2+0+2+4}{5} = \frac{12}{5} = 2.4$ .



Scan me!  
For more practice  
& answers

Math Detective at Work

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## Hi, Math Detective!

◇ You did such a great job! You finished 6 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 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 6 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.

6  
PRINTED  
TESTS

+  
2  
ONLINE  
TESTS

## PERFECT FOR:

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

★ BUILD SKILLS.  
GAIN CONFIDENCE.  
SUCCEED!

## 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.



6 FULL-LENGTH  
PRINTED TESTS



2 ONLINE  
PRACTICE TESTS



DETAILED ANSWER  
EXPLANATIONS