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Michigan M STEP

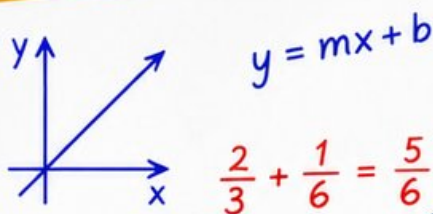
GRADE

7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

**5 PRINTED TESTS****2 ONLINE TESTS**

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



Build
Confidence



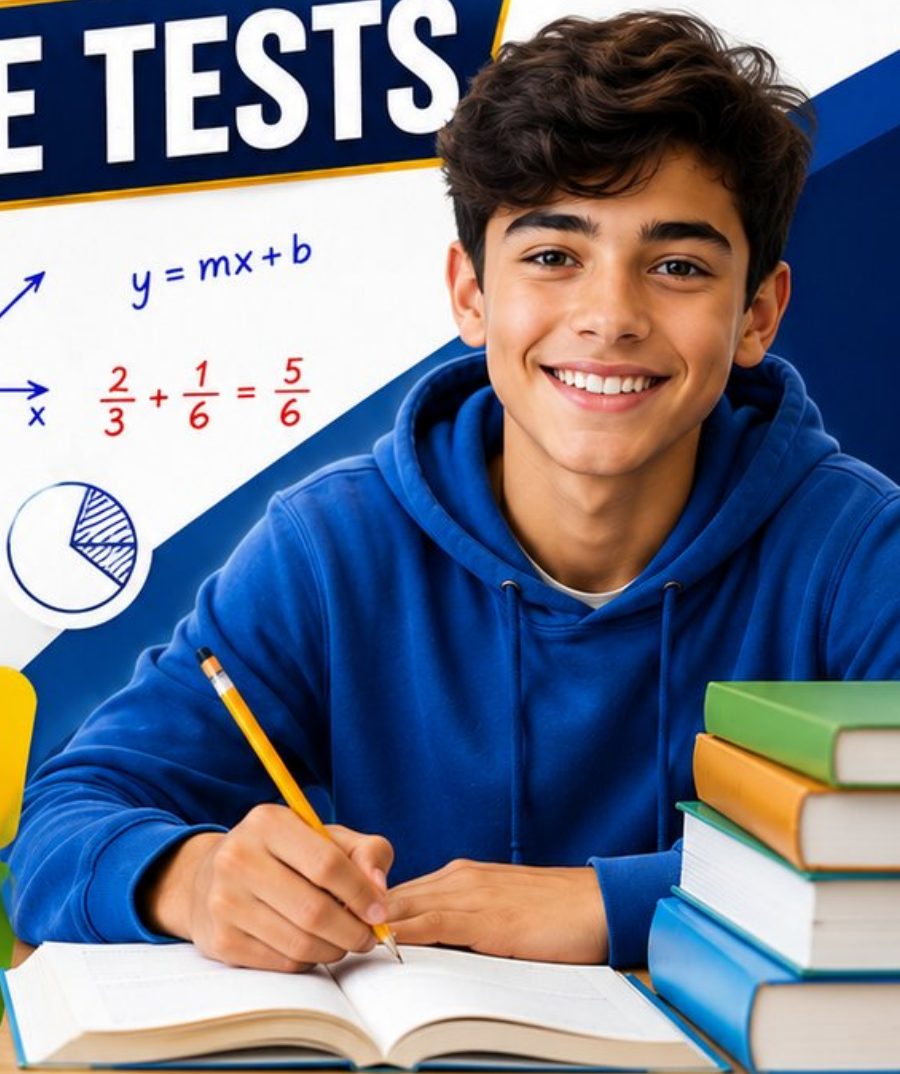
Strengthen
Math Skills



Detailed Answers
& Explanations

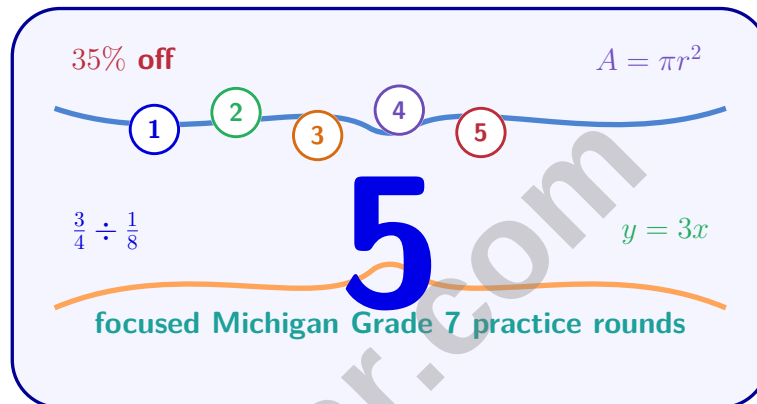


Improve Test
Performance



5 Michigan M STEP Grade 7 Math Practice Tests

Five Focused Tests with Review, Answers, and Skill-Building Support



Five complete 40-question Grade 7 M STEP practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Michigan Grade 7 Problem Solver!

Five focused rounds for sharper M STEP math thinking

This book gives you five full Grade 7 M STEP math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, and explain your thinking with care.

Your Michigan Practice Promise

I will read every question carefully, choose a strategy that fits, write enough work to prove my answer, and use corrections as training for the next test.

Read

Model

Verify

How to Use This Book

A five-session plan for confident Grade 7 review

1. **Warm up with the review pages.** Notice the big ideas before starting the tests.
2. **Complete one test at a time.** Treat each 40-question round like a real practice session.
3. **Show your reasoning.** Jot a proportion, equation, diagram, number line, or quick estimate when it helps.
4. **Correct actively.** Rework missed items before reading the explanation.
5. **Choose the next target.** After each test, name one skill and one habit to improve.

Michigan review rhythm: Work a test, score it, study your misses, then come back ready for the next round with one clear goal.



What Is Inside?

Five M STEP tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 3–5	Expressions, equations, inequalities, scale drawings, geometry, data, probability, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



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& answers

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1) An online store applies a 20% markup to all wholesale costs. If the wholesale cost is w , the selling price is $1.2w$. Which real-world scenario best uses this expression?

- ☐ A. Finding the sale price after a 20% off promotion
- ☐ B. Finding the price after a 20% surcharge is added
- ☐ C. Finding the original price if the marked-up price is known
- ☐ D. Finding the tax owed on the wholesale cost

2) Evaluate: $10 - (-5)$

- ☐ A. 5
- ☐ B. -15
- ☐ C. -5
- ☐ D. 15

3) A proportional relationship passes through the points $(6, 2)$ and $(0, 0)$. What is the constant of proportionality?

4) Which expression uses the associative property to group the two negative addends first?

- ☐ A. $-6 + 13 + (-7)$
- ☐ B. $(-6 + (-7)) + 13$
- ☐ C. $13 + (-6) + (-7)$
- ☐ D. $(13 + (-6)) + (-7)$

5) A doll house is 2 feet tall with a scale of $1 : 12$. How tall is the actual house it models?

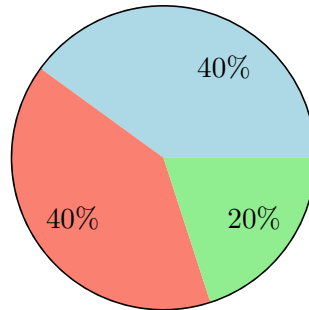
- ☐ A. 12 feet
- ☐ B. 6 feet
- ☐ C. 12 inches
- ☐ D. 24 feet



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6) A plant grew 12 cm. This is 15% of its total final height. What was the total height?

- ☐ A. 60 cm ☐ C. 80 cm
☐ B. 72 cm ☐ D. 90 cm



7)

The circle graph shows the results of a survey on transportation methods. Blue is cars (40%), salmon is buses (40%), and green is bicycles (20%). If 500 people were surveyed, how many use bicycles?

- ☐ A. 50 ☐ C. 200
☐ B. 100 ☐ D. 400

8) Runner A covers $\frac{1}{3}$ mile in $\frac{1}{20}$ hour. Runner B covers $\frac{2}{5}$ mile in $\frac{1}{12}$ hour. Which runner is faster?

- ☐ A. Runner A at $\frac{1}{60}$ mph ☐ C. They run at the same speed
☐ B. Runner B at $\frac{24}{5}$ mph ☐ D. Runner A at $\frac{20}{3}$ mph

9) A manufacturing plant produces widgets at a constant rate. In 8 hours, 240 widgets are produced. How many widgets are produced per hour?

- ☐ A. 20 widgets per hour ☐ C. 240 widgets per hour
☐ B. 1920 widgets per hour ☐ D. 30 widgets per hour



- 10) A retailer buys items for \$80 and marks them up by 55%. What is the selling price?

- 11) A diver starts at sea level (0 m) and descends 2.25 meters per minute. How deep is the diver after 8 minutes?

- ☐ A. -18 m ☐ C. -14 m
☐ B. -16.25 m ☐ D. -10.25 m

- 12) The distance from Earth to the Sun is approximately 1.5×10^8 kilometers. Express this in standard form.

- ☐ A. 15,000,000 km ☐ C. 1,500,000,000 km
☐ B. 150,000,000 km ☐ D. 15,000,000,000 km

- 13) A group pays a \$50 entry fee plus \$8 per person. Is total cost proportional to the number of people?

- ☐ A. Yes, $k = 8$ ☐ C. Yes, $k = 50$
☐ B. Only if more than 6 people attend ☐ D. No, there is a fixed entry fee

- 14) A family's monthly income is \$3,600. They spend 50% on housing, 20% on food, 15% on utilities, and the rest on other expenses. How much do they spend on other expenses?

- ☐ A. \$180 ☐ C. \$540
☐ B. \$360 ☐ D. \$720



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- 1) A phone case costs \$15 and is discounted by \$3. What is the percent discount?
- ☐ A. 10% ☐ C. 15%
- ☐ B. 25% ☐ D. 20%
- 2) Three samples show proportions of $\frac{15}{50}$, $\frac{12}{40}$, and $\frac{18}{72}$ of students who prefer science. Which two samples have the same proportion?
- ☐ A. First and second ☐ C. First and third
- ☐ B. Second and third ☐ D. None have the same proportion
- 3) What is the greatest common numerical factor of $14ab$ and $21a$?

- 4) Simplify $(7p + 3) + (2p - 8)$, then evaluate when $p = 2$.

- 5) A baker makes cookies in batches. Every batch requires $\frac{1}{4}$ cup of vanilla. If the baker makes b batches, which equation shows the total vanilla v (in cups) needed?

- ☐ A. $v = 4b$ ☐ C. $v = b + \frac{1}{4}$
- ☐ B. $b = \frac{1}{4}v$ ☐ D. $v = \frac{1}{4}b$



- 6) A rectangular prism has dimensions $6\text{ cm} \times 4\text{ cm} \times 3\text{ cm}$. What is its surface area?
- ☐ A. 72 cm^2 ☐ C. 144 cm^2
☐ B. 108 cm^2 ☐ D. 216 cm^2
- 7) A simulation of rolling two dice (using two spinners, each with 6 equal sections) is performed 200 times. The event "getting a sum of at least 10" is tracked. The successful outcomes are (4, 6), (5, 5), (5, 6), (6, 4), (6, 5), (6, 6) — that is, 6 outcomes out of 36. If the simulation results show 35 successes in 200 trials, what is the estimated probability of rolling a sum of at least 10?
- ☐ A. 0.12 ☐ C. 0.31
☐ B. 0.17 ☐ D. 0.35
- 8) Solve: $4x - 9 = -1$ and verify by substituting back.
- ☐ A. $x = -2$ ☐ C. $x = 2$
☐ B. $x = 0$ ☐ D. $x = 4$
- 9) Which inequality represents "twice a number is at most 30"?
- ☐ A. $2x > 30$ ☐ C. $x \leq 30$
☐ B. $2x \leq 30$ ☐ D. $2x < 30$
- 10) A cube is sliced diagonally such that the cutting plane passes through two opposite edges (not just vertices). What is the maximum number of sides the cross-section can have?
- ☐ A. 3 ☐ C. 5
☐ B. 4 ☐ D. 6



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1) A rectangular window frame is drawn 3.2 inches by 4.8 inches at a scale of 1 in : 2.5 ft. If the scale is changed to 1 in : 5 ft, what will be the new width?

☐ A. 1.6 in

☐ B. 2.4 in

☐ C. 3.2 in

☐ D. 6.4 in

2) Simplify: $(-4t + 12) + (7t - 5)$

☐ A. $3t + 7$

☐ B. $3t - 7$

☐ C. $-11t + 7$

☐ D. $11t + 7$

3) A concert requires at least 200 ticket sales to break even. If 47 tickets have been sold, how many more are needed?

☐ A. $47 + t \geq 200$

☐ B. $t \geq 153$

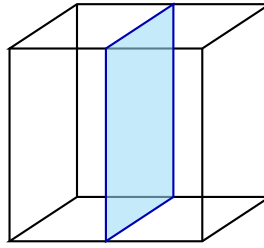
☐ C. $t > 200$

☐ D. $t < 153$

4) Solve for x : $-2(x - 6) = 8$



square slice



5)

A cube with side length 5 cm is sliced by a vertical plane parallel to a lateral face, passing through the center. What is the perimeter of the square cross-section?

- ☐ A. 10 cm ☐ C. 20 cm
☐ B. 15 cm ☐ D. 30 cm

6) Priya earns \$1,500 per month. Her budget is as follows: 50% housing, 20% food, 15% utilities, 10% savings. How much does she have left for miscellaneous expenses?

- ☐ A. \$75 ☐ C. \$225
☐ B. \$150 ☐ D. \$300

7) Evaluate: $-\frac{5}{6} - \frac{1}{3}$

- ☐ A. $\frac{7}{6}$ ☐ C. $-\frac{5}{6}$
☐ B. $-\frac{1}{2}$ ☐ D. $-1\frac{1}{6}$

8) An account shows a balance of $-\$360$ (a debt). The debt is split equally among 4 people. What is each person's share?

- ☐ A. Each person owes \$90 ☐ C. $(-360) \div 4 = -90$, so each person's debt is \$90
☐ B. Each person receives \$90 ☐ D. Cannot divide debt



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Michigan M STEP Grade 7 Practice Test Answer Keys**How to use this section with a Grade 7 student:**

1. check the answer first and circle any item that needs another look
2. retry the problem with fresh work before reading the explanation
3. write one short lesson learned from each missed or guessed item

A strong review routine turns every correction into a sharper plan for the next Michigan M STEP practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.EE.1-7.EE.2) A markup of 20% means adding 20% to the cost: $w + 0.2w = 1.2w$. This matches a surcharge or fee being added.
- 2) **Choice D is correct.** (7.NS.1-7.NS.3) $10 - (-5) = 10 + 5 = 15$. Always convert subtraction of a negative to addition.
- 3) **The correct answer is $\frac{1}{3}$.** (7.RP.1-7.RP.3) The constant is $k = \frac{y}{x} = \frac{2}{6} = \frac{1}{3}$.
- 4) **Choice B is correct.** (7.NS.1b) Option B groups the two negative numbers first ($-6 + (-7) = -13$), then adds the positive: $-13 + 13 = 0$. This is easier than computing left-to-right.
- 5) **Choice D is correct.** (7.RP.1-7.RP.3) Multiply doll height by scale: 2 feet $\times$ 12 = 24 feet.
- 6) **Choice C is correct.** (7.RP.3) If $12 = 0.15 \times h$, then $h = \frac{12}{0.15} = 80$ cm.
- 7) **Choice B is correct.** (7.SP.1-7.SP.4) 20% of 500 = $0.20 \times 500 = 100$ people.
- 8) **Choice D is correct.** (7.RP.1-7.RP.3) Runner A: $\frac{1/3}{1/20} = \frac{1}{3} \times 20 = \frac{20}{3}$ mph. Runner B: $\frac{2/5}{1/12} = \frac{2}{5} \times 12 = \frac{24}{5} = 4.8$ mph. Runner A is faster.
- 9) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $240 \div 8 = 30$ widgets per hour.
- 10) **The correct answer is \$124.** (7.RP.3) Markup = $0.55 \times 80 = \$44$. Selling price = $80 + 44 = \$124$.
- 11) **Choice A is correct.** (7.NS.1-7.NS.3) Depth = $-2.25 \times 8 = -18$ m (18 meters below sea level).
- 12) **Choice B is correct.** (7.NS.1-7.NS.3) $1.5 \times 10^8 = 1.5 \times 100,000,000 = 150,000,000$.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) Cost = $50 + 8n$. The constant term 50 makes this non-proportional.
- 14) **Choice C is correct.** (7.RP.3) Other expenses = $(100 - 50 - 20 - 15)\% = 15\%$ of \$3,600 = $0.15 \times 3600 = \$540$.
- 15) **Choice A is correct.** (7.NS.1-7.NS.3) Since $5.2 < 7.1$, the difference is negative: $5.2 - 7.1 = -1.9$.
- 16) **Choice C is correct.** (7.NS.1-7.NS.3) $\frac{4}{7} \div \frac{2}{7} = \frac{4}{7} \times \frac{7}{2} = \frac{4}{2} = 2$.
- 17) **Choice B is correct.** (7.NS.2d) $1 \div 2 = 0.5$. This is terminating since the denominator is a power of 2.
- 18) **Choice A is correct.** (7.NS.1-7.NS.3) Elevation gain: $250 - 100 = 150$ meters.
- 19) **Choice A is correct.** (7.NS.1-7.NS.3) $\sqrt{4} = 2$, $\sqrt{36} = 6$, and $\sqrt{100} = 10$.
- 20) **Choice D is correct.** (7.SP.5-7.SP.8) $\frac{2}{7} + \frac{2}{7} + \frac{3}{7} = \frac{7}{7} = 1$. All probabilities are in $[0, 1]$, so this is valid.
- 21) **The correct answer is A, C.** (7.SP.1-7.SP.4) Sample 1: $\frac{48}{200} = 0.24$; Sample 2: $\frac{36}{150} = 0.24$; Sample 3: $\frac{60}{250} = 0.24$. All are equal, so A is correct. These proportions can be used to estimate the full population (C). B is false (all equal), D is misleading, and E contradicts the actual data.
- 22) **Choice A is correct.** (7.NS.2) Products are: $(-3) \times 4 = -12$, $(-2) \times (-5) = 10$, $1 \times 6 = 6$, $(-4) \times (-2) = 8$. From smallest to largest: -12, 6, 8, 10, so answer is A.
- 23) **Choice B is correct.** (7.SP.3) Volatility is measured by range. Location 1: $\$2.90 - \$2.10 = \$0.80$. Location 2: $\$3.20 - \$2.00 = \$1.20$. Larger range indicates more volatility.
- 24) **Choice D is correct.** (7.RP.3) Usage fee = $0.10 \times 1500 = \$150$. Total = $200 + 150 = \$350$.
- 25) **Choice C is correct.** (7.G.4-7.G.6) Rectangle: $10 \times 7 = 70$ sq units. Triangle: $\frac{1}{2} \times 2 \times 7 = 7$ sq units. Total: $70 + 7 = 77$ sq units.
- 26) **Choice C is correct.** (7.RP.1-7.RP.3) Ratio 2 : 9. If water = 18, then $\frac{2}{9} = \frac{x}{18}$, so $x = 2 \times 2 = 4$ cups salt.
- 27) **Choice D is correct.** (7.RP.3) Available balance: $\$1240 - \$340 = \$900$ (after pending checks clear).
- 28) **Choice D is correct.** (7.RP.3) For doubling: $(1 + r)^{10} = 2 \Rightarrow 1 + r = 2^{1/10} \approx 1.0718 \Rightarrow r \approx 7.18\%$. Check: $(1.07)^{10} \approx 1.967 \approx 2.0$.
- 29) **Choice C is correct.** (7.RP.1-7.RP.3) A proportional relationship has form $y = kx$. Only option C fits this pattern with $k = \frac{3}{4}$.
- 30) **Choice A is correct.** (7.G.4-7.G.6) Original volume = $3 \times 4 \times 6 = 72$ cm³. When all dimensions are halved, volume is divided by $2^3 = 8$. Smaller prism volume = $72/8 = 9$ cm³.



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Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 7 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 7 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

If you want to share something or ask a question, please email me at jay@testinar.com.

Jay Daie

Your Persistence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **5** full-length Math practice tests and **2** online tests to help Grade 7 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:

5 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answers & 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



Build Confidence

Practice regularly to feel prepared and test-ready.



Strengthen Math Skills

Develop key math concepts and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Boost Performance

Apply your knowledge and achieve your best score!

TOPICS COVERED

- ✓ Ratios & Proportions
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Percents & Decimals
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
- ✓ And More!



2 ONLINE TESTS

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



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!



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