

7

Ohio OST

Grade 7 Math Practice Tests



ONLINE

7 PRINTED TESTS + 2 ONLINE TESTS



**Standards Aligned Problem Solving
For Comprehensive Assessment Programs**



8 Ohio OST Grade 7 Math Practice Tests

A no-fluff workout in Ohio Grade 7 algebraic reasoning, proportional relationships, geometry, data displays, and simulations



Eight complete 40-question Grade 7 OST 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, Ohio Grade 7 Problem Solver!

Eight focused rounds for sharper OST math thinking

This book gives you seven full Grade 7 OST 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 Ohio 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

An eight-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.

Ohio 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?

Eight OST tests, 280 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 4–6	Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving.
Tests 7–8	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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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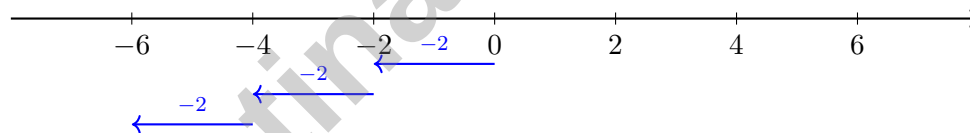
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- 1) A bag contains marbles of three colors. Maria draws a marble, records the color, and replaces it. After 300 draws, the results are:

Color	Red	Blue	Green
Count	105	95	100

If Maria draws one more marble, which color is she most likely to draw based on experimental probability?

- ☐ A. All equally likely ☐ C. Green
☐ B. Blue ☐ D. Red
- 2) A restaurant charges a 2.5% service fee in addition to the bill. If a diner's meal costs \$80, what is the service fee?
- ☐ A. \$20.00 ☐ C. \$8.00
☐ B. \$2.50 ☐ D. \$2.00
- 3) The number line shows repeated additions. What does $3 \times (-2)$ equal?



- ☐ A. -8 ☐ C. 6
☐ B. -6 ☐ D. 8
- 4) A scalene triangle has one angle of 100° . What can be said about the other two angles?
- ☐ A. Both are less than 90° ☐ C. One is greater than 40° and one is less than 40°
☐ B. Both are greater than 50° ☐ D. At least one is less than 50°



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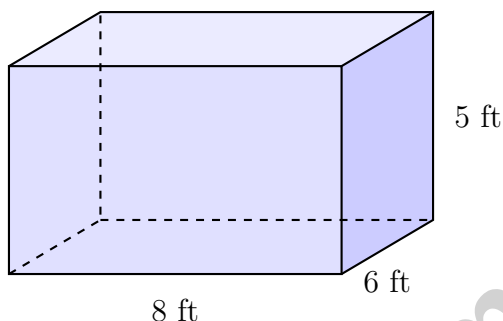
5) What is the opposite of 0?

☐ A. -1

☐ C. 0

☐ B. 1

☐ D. Undefined



6)

A rectangular prism has dimensions $8\text{ ft} \times 5\text{ ft} \times 6\text{ ft}$. Find the total surface area.

☐ A. 120 ft^2

☐ C. 240 ft^2

☐ B. 236 ft^2

☐ D. 480 ft^2

7) In a game, Leon gained 25 points and then lost 17 points. What was his net change in points?

☐ A. -42

☐ C. 8

☐ B. -8

☐ D. 42

8) A student evaluates $2x + 3y$ when $x = -4$ and $y = 2$, and writes: " $2(-4) + 3(2) = -8 + 6 = -2$." Is this correct?

☐ A. No, the error is in the multiplication of $2x$

☐ C. No, negative times positive is positive

☐ B. No, the error is in the addition step

☐ D. Yes, the answer is -2



9) Simplify: $\frac{2}{3}m + \frac{1}{6}m$

☐ A. $\frac{3}{9}m$

☐ B. $\frac{5}{6}m$

☐ C. $\frac{1}{2}m$

☐ D. $\frac{3}{6}m$

10) Factor: $-4x - 12$

☐ A. $-4(x + 3)$

☐ B. $4(x + 3)$

☐ C. $-4(x - 3)$

☐ D. $-(4x + 12)$

11) A simulation is designed to estimate the probability of getting exactly two tails in three coin flips. What is the theoretical probability that the simulation should approach?

☐ A. $\frac{1}{8}$

☐ B. $\frac{2}{8}$

☐ C. $\frac{3}{8}$

☐ D. $\frac{4}{8}$

12) Which is equivalent to $(6v + 2) + (3v - 8)$?

☐ A. $9v - 6$

☐ B. $3v - 6$

☐ C. $9v + 10$

☐ D. $9v - 10$

13) A baker buys flour in 5-pound bags at \$3 per bag. She also buys yeast for \$2. If she spends \$17 total, which equation represents the number of bags b she bought?

☐ A. $5b + 3 = 17$

☐ B. $3 + 2b = 17$

☐ C. $3b + 2 = 17$

☐ D. $5(b + 2) = 17$

14) Solve for x : $5(x - 2) = 35$

☐ A. $x = 5$

☐ B. $x = 7$

☐ C. $x = 9$

☐ D. $x = 12$



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1) Which expression is equivalent to πd ?

☐ A. $2\pi r$

☐ B. πr^2

☐ C. $\frac{2\pi r}{d}$

☐ D. $4\pi r$

2) Use the distributive property to simplify $3(x + 5) - 2x$.

☐ A. $3x + 15 - 2x = x + 15$

☐ B. $x + 5$

☐ C. $3x + 5 - 2x$

☐ D. $3x + 15$

3) Two histograms show daily temperature (in degrees Fahrenheit) over a month for City A and City B. City A's temperatures cluster at 70–75 degrees (range 5 degrees). City B's temperatures span 50–90 degrees (range 40 degrees). Where do the distributions overlap?

☐ A. City A has more variable temperatures☐ B. City B is always hotter than City A☐ C. Distributions overlap at 70–75 degrees; City A is more consistent☐ D. City B never reaches City A's temperature

4) Evaluate: $\frac{5}{12} + \frac{1}{3}$. Express your answer as a fraction in simplest form.

5) A rectangular prism with a square base has a base perimeter of 20 cm and a height of 8 cm. What is the volume? (Hint: find the side length of the square first.)

☐ A. 100 cm^3

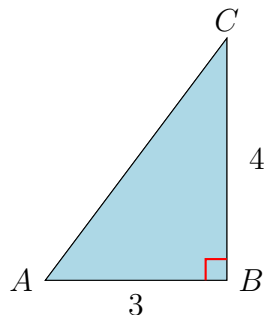
☐ B. 160 cm^3

☐ C. 200 cm^3

☐ D. 400 cm^3



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6)

In the right triangle, one leg is 3 and the other is 4. Which choice is the length of the hypotenuse?

☐ A. 5☐ C. 7☐ B. 6☐ D. $\sqrt{7}$

7) Every diameter of a circle is also a:

☐ A. Radius☐ C. Chord☐ B. Sector☐ D. Arc

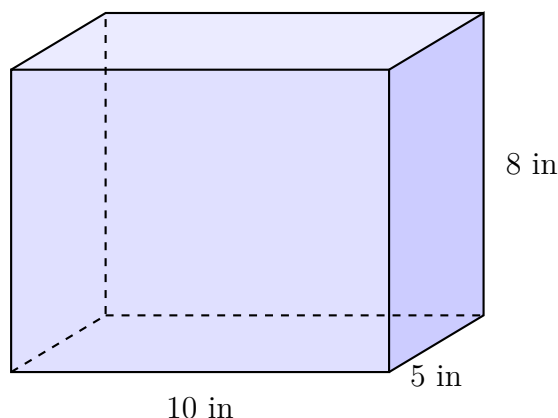
8) A store offers a loyalty card that gives 5% off all purchases. If you buy items totaling \$80, how much will you save with the card?

☐ A. \$2☐ C. \$4☐ B. \$3☐ D. \$59) A recipe calls for 2 cups of flour for every 1 cup of sugar. If the recipe uses s cups of sugar, which expression shows the amount of flour needed?☐ A. $s + 2$ ☐ C. $\frac{s}{2}$ ☐ B. $2s$ ☐ D. $2 + s$ 

- 1) A farmer has a field with area $24ab + 36b$ square meters. Which factorization represents the dimensions?
- ☐ A. $12b(2a + 3)$ ☐ C. $24(ab + 1.5b)$
☐ B. $6b(4a + 6)$ ☐ D. $4(6ab + 9b)$
- 2) A runner tracks distance and heartbeats. For every $\frac{1}{5}$ mile run, the runner's heart beats 25 times. What is the constant of proportionality relating heartbeats to miles?
- ☐ A. $k = \frac{1}{5}$ beats per mile ☐ C. $k = 0.2$ beats per mile
☐ B. $k = 5$ beats per mile ☐ D. $k = 125$ beats per mile
- 3) A recipe needs 2 cups of flour. If you want to make 150% of the recipe, how much flour do you need?
- ☐ A. 1.5 cups ☐ C. 3 cups
☐ B. 2.5 cups ☐ D. 4 cups
- 4) A student's test score improved from 72 to 90. What is the percent increase in the score?
- ☐ A. 18% ☐ C. 25%
☐ B. 20% ☐ D. 80%



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5)

Which rectangular prism dimensions would give a surface area of exactly 340 square inches?

☐ A. 10 in $\times$ 8 in $\times$ 5 in☐ C. 12 in $\times$ 8 in $\times$ 5 in☐ B. 10 in $\times$ 9 in $\times$ 5 in☐ D. 11 in $\times$ 8 in $\times$ 5 in

6) A spinner with unequal sections is spun many times in a simulation. The relative frequency of one outcome converges to 0.32 after 10000 spins. What does this tell you about the theoretical probability of that outcome?

☐ A. The theoretical probability is exactly 0.32☐ C. The theoretical probability is less than 0.32☐ B. The theoretical probability is approximately 0.32☐ D. The theoretical probability cannot be determined from this information

Ohio's State Tests 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 Ohio's State Tests practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (7.SP.6) Red has the highest experimental probability: $\frac{105}{300} = 0.35$. From observed patterns, Red appeared most frequently, so we predict it is most likely on the next draw.
- 2) **Choice D is correct.** (7.RP.3) Service fee = $0.025 \times 80 = \$2.00$.
- 3) **Choice B is correct.** (7.NS.2) Three groups of -2 : $3 \times (-2) = -6$. The arrows move left 2 units, 3 times, landing on -6 .
- 4) **Choice D is correct.** (7.G.1-7.G.5) The sum of the other two angles is $180^\circ - 100^\circ = 80^\circ$. If both were at least 50° , their sum would exceed 100° . Therefore, at least one must be less than 50° .
- 5) **Choice C is correct.** (7.NS.1-7.NS.3) Zero is its own opposite. The opposite of 0 is 0, since $0 = -0$.
- 6) **Choice B is correct.** (7.G.4-7.G.6) $SA = 2(8 \cdot 5 + 8 \cdot 6 + 5 \cdot 6) = 2(40 + 48 + 30) = 2(118) = 236 \text{ ft}^2$.
- 7) **Choice C is correct.** (7.NS.1b) Net change = gain + loss = $25 + (-17) = 8$. A net gain of 8 points.
- 8) **Choice D is correct.** (7.EE.1-7.EE.2) The work is correct: $2(-4) + 3(2) = -8 + 6 = -2$.
- 9) **Choice B is correct.** (7.EE.1) Convert to common denominator: $\frac{2}{3}m = \frac{4}{6}m$. Then $\frac{4}{6}m + \frac{1}{6}m = \frac{5}{6}m$.
- 10) **Choice A is correct.** (7.EE.1-7.EE.2) Factor out the negative GCF: $-4x - 12 = -(4x + 12)$. Check: $-4(x + 3) = -4x - 12$.
- 11) **Choice C is correct.** (7.SP.5-7.SP.8) Outcomes with exactly two tails: TTH, THT, HTT. That is 3 out of 8 equally likely outcomes.
- 12) **Choice A is correct.** (7.EE.1-7.EE.2) Combine: $(6v + 3v) + (2 - 8) = 9v - 6$.
- 13) **Choice C is correct.** (7.EE.4a) Each bag costs \$3 and yeast is \$2. Equation: $3b + 2 = 17$.
- 14) **Choice C is correct.** (7.EE.4a) Distribute: $5x - 10 = 35$. Add 10: $5x = 45$. Divide by 5: $x = 9$. (Distractor A: solving $x - 2 = 5$ instead; Distractor D: arithmetic error when isolating x .)
- 15) **Choice B is correct.** (7.EE.4b) Set up: $47 + t \geq 200$. Subtract 47: $t \geq 153$. At least 153 more tickets are needed.
- 16) **The correct answer is 0.85.** (7.RP.1-7.RP.3) The marked point is $(1, 0.85)$, which is the unit-rate point. This means the constant of proportionality is $k = 0.85$, so the cost is \$0.85 per item.
- 17) **Choice C is correct.** (7.G.1-7.G.5) Multiply: $8 \times 2 = 16 \text{ km}$.
- 18) **Choice C is correct.** (7.G.1-7.G.5) A plane perpendicular to a hexagonal prism's bases can intersect it in various quadrilaterals. If perpendicular to the prism's edges, it forms a rectangle; at an angle, it forms a parallelogram.
- 19) **The correct answer is A, C.** (7.RP.1-7.RP.3) True: A ($4 \times 6 = 24$ feet) and C ($2 \times 6 = 12$ feet; $2.5 \times 6 = 15$ feet). False: B (area scales by $6^2 = 36$, not 6); D (area: $900 \div 36 = 25$ sq in, not 36); E (areas are reduced by $\frac{1}{36}$ on the plan, not $\frac{1}{6}$).
- 20) **Choice A is correct.** (7.G.1-7.G.5) Figure 1 has width 3 and height 2. Figure 2 has width 2 and height 3 (rotated). This is a 90° counterclockwise rotation about the origin.
- 21) **Choice C is correct.** (7.G.4-7.G.6) $A = \pi r^2 = 3.14 \times 9^2 = 3.14 \times 81 = 254.34 \text{ ft}^2$.
- 22) **Choice C is correct.** (7.G.4-7.G.6) $SA = 2\pi r^2 + 2\pi rh = 2(3.14)(4) + 2(3.14)(2)(9) = 25.12 + 113.04 = 138.16 \text{ mm}^2$.
- 23) **Choice A is correct.** (7.SP.1-7.SP.4) The phrase "much better" is leading language that suggests a positive comparison, biasing respondents toward agreeing. A neutral question would ask if there is a difference without suggesting which is better.
- 24) **Choice D is correct.** (7.SP.1-7.SP.4) 50% of $\$500,000 = 0.50 \times \$500,000 = \$250,000$ allocated to Academics.
- 25) **Choice B is correct.** (7.SP.5-7.SP.8) Green sections: 2 out of 8. $P(\text{green}) = \frac{2}{8} = \frac{1}{4}$.
- 26) **Choice C is correct.** (7.SP.5-7.SP.8) Letters: 3; numbers: 4. Total: $3 \times 4 = 12$ ordered pairs.
- 27) **The correct answer is \$90.** (7.RP.3) If $18 = 0.20 \times b$, then $b = \frac{18}{0.20} = 90$ dollars.
- 28) **Choice C is correct.** (7.NS.1-7.NS.3) $1.5 + 2.3 = 3.8$.
- 29) **Choice B is correct.** (7.NS.1-7.NS.3) Using the chart: negative $\div$ positive = negative. So $(-15) \div 3 = -5$.
- 30) **Choice B is correct.** (7.NS.2d) The decimal $0.\overline{3}$ repeats the digit 3 infinitely and never terminates. It equals $\frac{1}{3}$.
- 31) **The correct answer is \$124.** (7.RP.3) Markup = $0.55 \times 80 = \$44$. Selling price = $80 + 44 = \$124$.



Hi, Confident Learner!

◇ This broad and demanding book gave you seven strong Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 7 math can feel big because it brings together rational numbers, expressions, equations, geometry, probability, and data. ◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 7 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence Coach

Practice Today. Succeed Tomorrow!

This book includes **7** 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:

7 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 & 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!

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