

5

Ohio OST

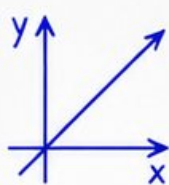
GRADE

7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs



$$y = mx + b$$

$$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$$



$$V = \pi r^2 h$$



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



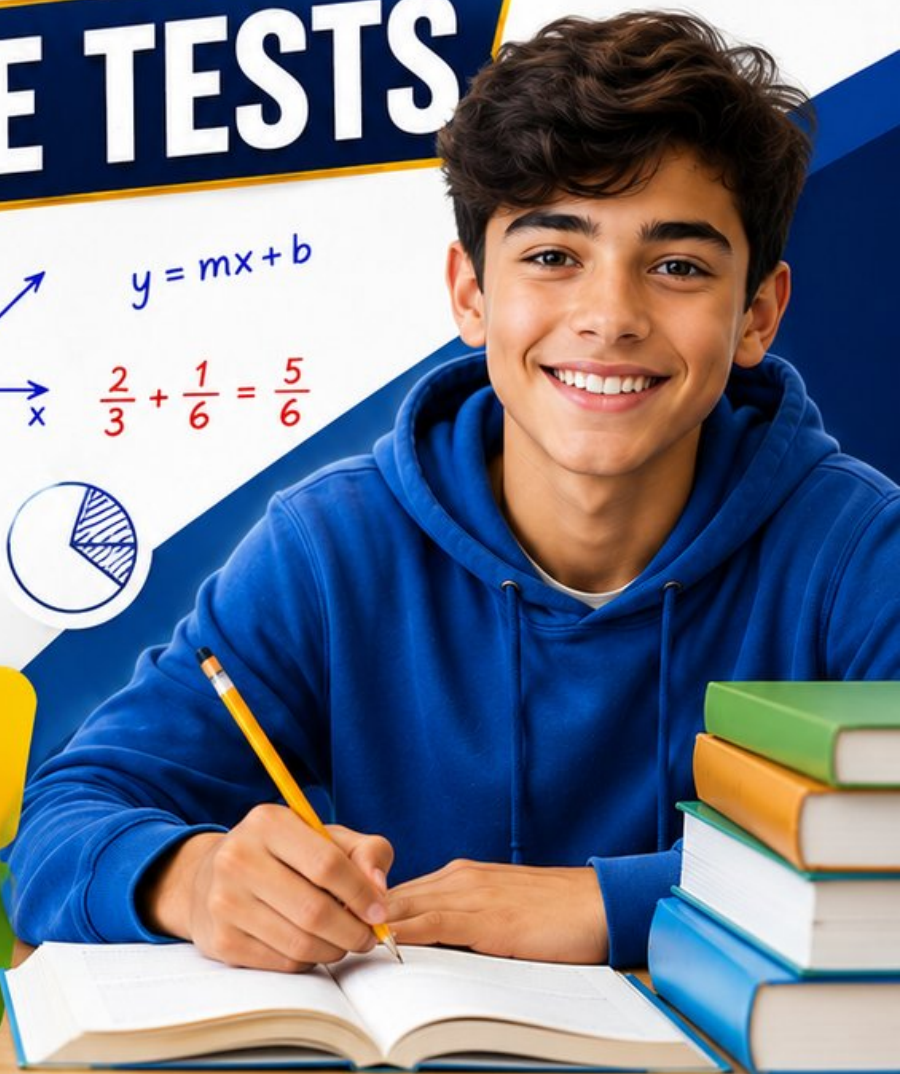
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



5 Ohio OST Grade 7 Math Practice Tests

Focused Standards Review with Five Practice Tests and Clear Keys



Five 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!

Five focused rounds for sharper OST math thinking

This book gives you five 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

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.

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?

Five OST 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) Which is the best approximation for π ?

☐ A. $\frac{22}{7}$

☐ C. 2.5

☐ B. 3

☐ D. 4

2) The graph of a proportional relationship passes through (4, 10) and the origin. At what point does the line cross $x = 2$?



3) An account balance starts at -50 dollars (debt). If you subtract another 20 dollars from this account, what is the new balance?

☐ A. -30 dollars

☐ C. 30 dollars

☐ B. -70 dollars

☐ D. 70 dollars

4) A park's actual area is 400 square meters. If a scale model has linear dimensions that are $\frac{1}{10}$ the actual, what is the area of the model?

☐ A. 40 square meters

☐ C. 3.6 square meters

☐ B. 0.4 square meters

☐ D. 4 square meters

5) A store applies a markup of \$50 to an item costing \$200. What is the percent markup?

☐ A. 20%

☐ C. 10%

☐ B. 50%

☐ D. 25%



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6) A stock started the day at \$50. It fell \$12 and then rose \$8. What was its closing price?

☐ A. \$30☐ C. \$54☐ B. \$70☐ D. \$46

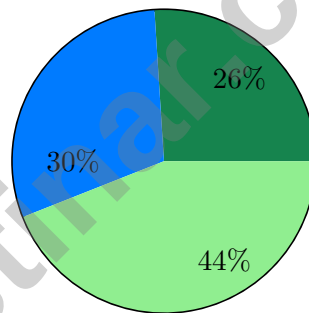
7) Which expression represents “twice the difference of y and 5”?

☐ A. $2y - 5$ ☐ C. $5 - 2y$ ☐ B. $2(y - 5)$ ☐ D. $2y + 5$

8) Simplify: $6x^2y + 3x^2y - 2x^2y$

☐ A. $7x^2y$ ☐ C. $7x^4y$ ☐ B. $11x^2y$ ☐ D. $4x^2y$

9)



The circle graph shows time spent on daily activities. Coral is work (26%), sky blue is sleep (30%), and light green is personal time (44%). If a person has 24 hours in a day, how many hours are spent on personal time?

☐ A. 6.24 hours☐ C. 10.56 hours☐ B. 7.2 hours☐ D. 12 hours

- 10) A map shows a scale of 1 inch = 50 miles. If the distance on the map is $\frac{1}{2}$ inch, which equation finds the actual distance d (in miles)?
- ☐ A. $\frac{1}{2} = 50d$, so $d = \frac{1}{100}$ miles ☐ C. $d = \frac{50}{\frac{1}{2}}$, so $d = 100$ miles
☐ B. $d = 50 + \frac{1}{2}$, so $d = 50.5$ miles ☐ D. $d = 50 \times \frac{1}{2}$, so $d = 25$ miles
- 11) Two savings accounts earn interest at different rates. Account 1 earns 4% annual interest, and Account 2 earns 6% annual interest. If both start with \$1,500, which earns more interest?
- ☐ A. Account 1 (higher rate always wins) ☐ C. Both earn equally
☐ B. Cannot be determined without more time ☐ D. Account 2 (higher rate always wins)
- 12) Which pair of points lies on a line representing a proportional relationship?
- ☐ A. (0, 5) and (2, 10) ☐ C. (1, 4) and (2, 8)
☐ B. (0, 0) and (3, 9) ☐ D. (0, 2) and (4, 10)
- 13) A photographer charges per photo in a proportional relationship. If 12 photos cost \$84, what is the cost per photo?
- ☐ A. \$1008 ☐ C. \$72
☐ B. \$12 ☐ D. \$7
- 14) A membership costs \$80 per month. If a gym offers a 10% discount for annual payment, how much would the annual membership cost?
- ☐ A. \$720 ☐ C. \$864
☐ B. \$800 ☐ D. \$960



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- 1) A dot plot shows the number of text messages sent by 12 students in one day: 5, 8, 10, 10, 12, 12, 12, 15, 18, 20, 22, 25. Which measure BEST represents the “typical” number of messages sent?

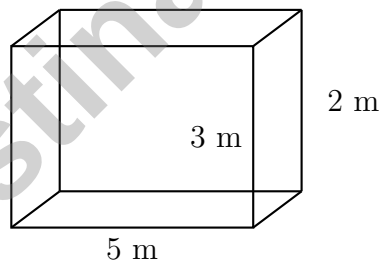
☐ A. The mean (approximately 14.3) ☐ C. The mode (12)
☐ B. The median (12.5) ☐ D. The range (20)

- 2) A painter completes $\frac{2}{3}$ of a room in $\frac{1}{5}$ hour. At this rate, how many rooms will the painter complete in 1 hour?

☐ A. $\frac{2}{15}$ room ☐ C. 1 room
☐ B. $\frac{3}{5}$ room ☐ D. $\frac{10}{3}$ rooms

- 3) A proportional relationship is given by the equation $y = 2.4x$. Which point does NOT lie on the line?

☐ A. (1, 2.4) ☐ C. (10, 24)
☐ B. (5, 12) ☐ D. (2, 5)



4)

A rectangular prism with dimensions $5\text{ m} \times 3\text{ m} \times 2\text{ m}$ is shown above. Calculate its surface area.

☐ A. 30 m^2 ☐ C. 84 m^2
☐ B. 62 m^2 ☐ D. 120 m^2



5) In a simulation of drawing colored balls from a bag, which change would improve the reliability of the probability estimate?

- ☐ A. Using a smaller bag ☐ C. Using fewer colors
☐ B. Performing more trials ☐ D. Replacing the bag after each trial

6) What negative common factor is factored out of $-8x - 16$?

7) Solve for x : $4(x + 9) = 60$

- ☐ A. $x = 6$ ☐ C. $x = 12$
☐ B. $x = 9$ ☐ D. $x = 15$

8) Solve: $-2(x + 1) < 10$

- ☐ A. $x > -6$ ☐ C. $x < 6$
☐ B. $x < -6$ ☐ D. $x > 6$

9) A scale drawing of a soccer field uses a scale of 1 cm : 10 m. The drawing shows the field as 6 cm long and 4 cm wide. What is the perimeter of the actual field?

- ☐ A. 80 m ☐ C. 120 m
☐ B. 100 m ☐ D. 200 m



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1) A restaurant bill is \$85 before tax. With a 9% sales tax, what is the total bill?

☐ A. \$94.85

☐ C. \$77.65

☐ B. \$85.90

☐ D. \$92.65

2) Simplify: $(-3q - 7) + (8q + 2)$

☐ A. $5q - 5$

☐ C. $11q - 5$

☐ B. $5q + 5$

☐ D. $-5q - 5$

3) A student incorrectly solves a word problem. The problem is: "A book costs \$12 and a pen costs \$2 each. Sarah buys one book and 4 pens. What is the total?" The student writes: $\text{Total} = 12 + 2(4) = 12 + 8 = 20$. Is this correct?

☐ A. Yes, the equation and answer are correct.

☐ C. No; $2(4)$ should be subtracted, not added.

☐ B. No; the book cost should also be multiplied by 4.

☐ D. No; the answer should be \$28, not \$20.

4) Solve for x : $-3(x - 2) = 15$

☐ A. $x = -3$

☐ C. $x = 3$

☐ B. $x = -1$

☐ D. $x = 7$

5) A student claims that $x = 5$ is a solution to $2x - 1 > 7$. Is the student correct?

☐ A. Yes, because $2(5) - 1 = 9 > 7$

☐ C. Yes, the solution is exactly 5

☐ B. No, because $2(5) - 1 = 9 \not> 8$

☐ D. No, because $5 > 7$ is false



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6) Which pair of scales would produce drawings of the same size from the same actual object?

☐ A. 1 cm : 4 m and 2 cm : 6 m

☐ C. 3 mm : 1 m and 6 mm : 3 m

☐ B. 1 in : 12 ft and 1 in : 24 ft

☐ D. $\frac{1}{4}$ in : 1 ft and $\frac{1}{2}$ in : 2 ft

7) A recipe for lemonade uses a constant ratio of sugar to water. The graph shows a proportional relationship that passes through the point (4,6), where x = cups of sugar and y = cups of water. How many cups of water are needed for 8 cups of sugar?

☐ A. 6 cups

☐ C. 10 cups

☐ B. 8 cups

☐ D. 12 cups

8) A student's score changes are shown. What is the final change?

Event	Points
Penalty	-1.5
Correct answer	+3.2
Time deduction	-0.8

☐ A. 5.5

☐ C. 0.9

☐ B. 0.1

☐ D. -0.1

9) Rewrite $x \div \frac{4}{7} = 10$ using multiplication (reciprocal form).

☐ A. $x \times \frac{4}{7} = 10$

☐ C. $x \times 10 = \frac{4}{7}$

☐ B. $x \times \frac{7}{4} = 10$

☐ D. $10 \div x = \frac{4}{7}$



Ohio OST 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 OST practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** **(7.G.4-7.G.6)** $\pi \approx 3.14159 \dots$. The common approximations are 3.14 and $\frac{22}{7} \approx 3.142857$.
- 2) **The correct answer is (2, 5).** **(7.RP.1-7.RP.3)** $k = 10/4 = 2.5$. When $x = 2$: $y = 2.5 \times 2 = 5$. The point is (2, 5).
- 3) **Choice B is correct.** **(7.NS.1-7.NS.3)** $-50 - 20 = -70$. The debt increases by 20 dollars, resulting in a larger debt.
- 4) **Choice D is correct.** **(7.RP.1-7.RP.3)** Linear scale of $\frac{1}{10}$ means area scales by $(\frac{1}{10})^2 = \frac{1}{100}$. Model area = $400 \div 100 = 4 \text{ m}^2$.
- 5) **Choice D is correct.** **(7.RP.3)** Percent markup = $\frac{50}{200} \times 100 = 25\%$.
- 6) **Choice D is correct.** **(7.NS.1b)** Model as $50 + (-12) + 8 = 50 - 12 + 8 = 46$. The stock fell \$12 then rose \$8 for a net change of -\$4.
- 7) **Choice B is correct.** **(7.EE.1-7.EE.2)** Difference of y and 5 is $(y - 5)$. Twice this is $2(y - 5)$.
- 8) **Choice A is correct.** **(7.EE.1)** All terms have the same variables and exponents. Combine: $(6 + 3 - 2)x^2y = 7x^2y$.
- 9) **Choice C is correct.** **(7.SP.1-7.SP.4)** 44% of $24 = 0.44 \times 24 = 10.56$ hours.
- 10) **Choice D is correct.** **(7.RP.1-7.RP.3)** The scale creates a proportional relationship: map distance times 50 equals actual distance. For $\frac{1}{2}$ inch on the map, the actual distance is $50 \times \frac{1}{2} = 25$ miles.
- 11) **Choice D is correct.** **(7.RP.3)** Account 1: $\$1,500 \times 0.04 = \60 . Account 2: $\$1,500 \times 0.06 = \90 . A higher interest rate (6% vs. 4%) always yields more interest on the same principal over the same time period, illustrating the investment trade-off: higher rates = higher returns.
- 12) **Choice B is correct.** **(7.RP.1-7.RP.3)** Must pass through origin (0, 0). Only option B qualifies. Slope is $\frac{9}{3} = 3$, so $y = 3x$.
- 13) **Choice D is correct.** **(7.RP.1-7.RP.3)** Unit rate = $\$84 \div 12 = \7 per photo.
- 14) **Choice C is correct.** **(7.RP.3)** Annual before discount: $80 \times 12 = 960$. Discount: $\frac{10}{100} \times 960 = 96$. Price: $960 - 96 = \$864$.
- 15) **Choice A is correct.** **(7.NS.1-7.NS.3)** Same denominator: $\frac{5}{8} - \frac{7}{8} = -\frac{2}{8} = -\frac{1}{4}$.
- 16) **Choice B is correct.** **(7.NS.1-7.NS.3)** Division by a number equals multiplication by its reciprocal: $(-8) \div 2 = (-8) \times \frac{1}{2} = -4$.
- 17) **Choice B is correct.** **(7.NS.2d)** Divide $5 \div 8 = 0.625$. It is a terminating decimal.
- 18) **Choice C is correct.** **(7.NS.1-7.NS.3)** Distance down: $\frac{2}{3} \times 9 = \frac{2 \times 9}{3} = \frac{18}{3} = 6$ meters.
- 19) **Choice C is correct.** **(7.NS.1-7.NS.3)** Because $12 \times 12 = 144$, the square root of 144 is 12.
- 20) **The correct answer is A, C.** **(7.RP.1-7.RP.3)** A: $\frac{2}{1/4} = 8 \text{ \$/lb.}$ B: $\frac{3}{2/5} = 7.50 \text{ \$/lb.}$ C: $\frac{4}{1/2} = 8 \text{ \$/lb.}$ D: $\frac{7}{3/4} \approx 9.33 \text{ \$/lb.}$ Only A and C have the same unit price.
- 21) **Choice A is correct.** **(7.NS.1-7.NS.3)** $(50 + 12) \times 2 - 8 = 62 \times 2 - 8 = 124 - 8 = 116$.
- 22) **Choice A is correct.** **(7.EE.1-7.EE.2)** A 25% markup is $c + 0.25c = c(1 + 0.25) = 1.25c$.
- 23) **Choice A is correct.** **(7.SP.3)** Histogram centers show typical values. Class 2023 (3.2–3.8) is shifted right of Class 2024 (3.0–3.6), indicating higher typical GPA despite overlap.
- 24) **Choice B is correct.** **(7.SP.5-7.SP.8)** There are 4 Kings in 52 cards, so $P(\text{King}) = \frac{4}{52} = \frac{1}{13}$.
- 25) **Choice D is correct.** **(7.RP.3)** Ticket cost = $4 \times 12 = \$48$. Total = $48 + 1.50 = \$49.50$.
- 26) **Choice A is correct.** **(7.NS.2)** After 1 hour: $16 \times 0.5 = 8$ bacteria. After 2 hours: $8 \times 0.5 = 4$ bacteria. Multiplying by a decimal less than 1 decreases the quantity (scaling).
- 27) **Choice B is correct.** **(7.G.4-7.G.6)** Each trapezoid: $\frac{1}{2}(4 + 6) \times 3 = 15 \text{ m}^2$. Two trapezoids: $15 \times 2 = 30 \text{ m}^2$.
- 28) **Choice D is correct.** **(7.RP.1-7.RP.3)** The gas rate is $6 \div 168 = \frac{1}{28}$ gallon per mile. For 96 miles: $96 \times \frac{1}{28} = \frac{24}{7} \approx 3.43$ gallons, or about 3.4 gallons.
- 29) **Choice D is correct.** **(7.RP.3)** Savings allocation: $0.40 \times 4000 = \$1,600$.
- 30) **Choice D is correct.** **(7.RP.3)** Simple interest: $I = Prt = 500 \times 0.06 \times 3 = 90$.



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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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