

6 OHIO OST

GRADE

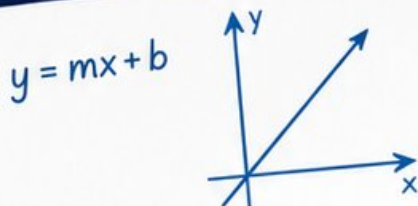
7

MATH

PRACTICE TESTS



Standards Aligned
Problem Solving For
Comprehensive
Assessment Programs



$$2(x - 3) = 4x + 6$$

6 PRINTED
TESTS



2 ONLINE
TESTS



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



Build
Confidence



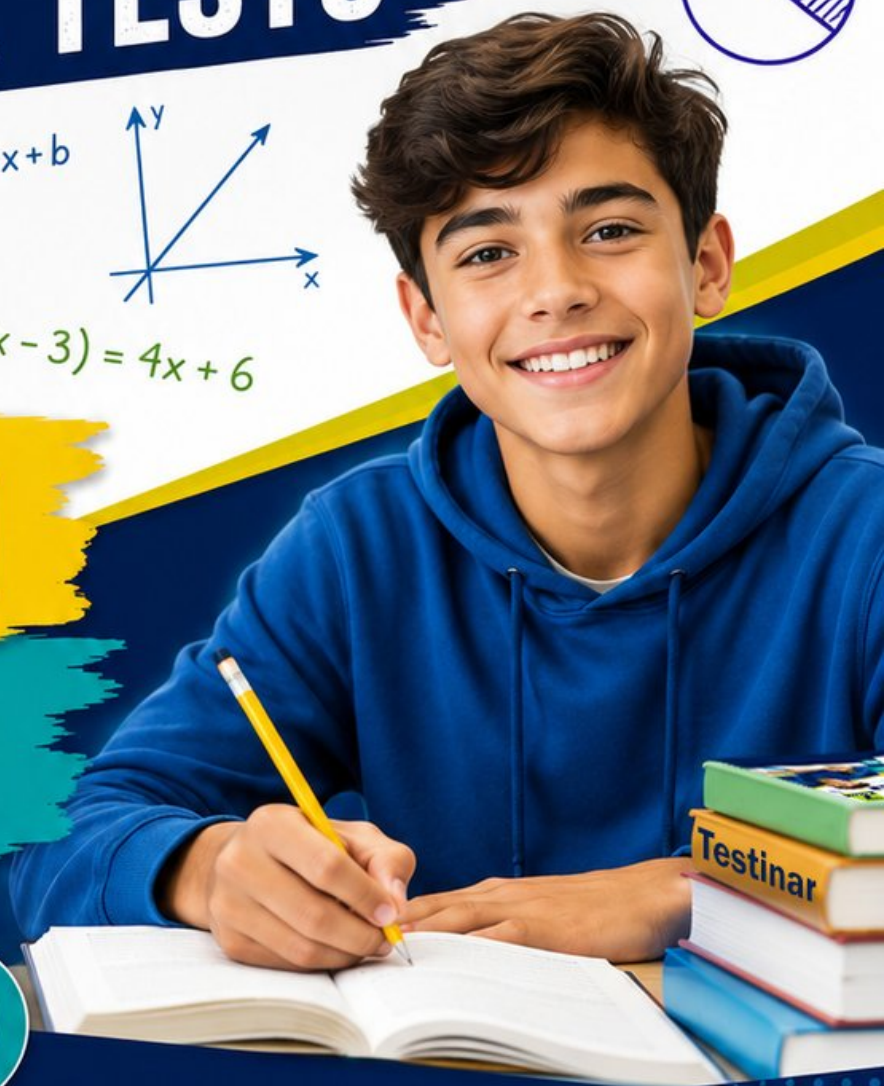
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



6 Ohio OST Grade 7 Math Practice Tests

Standards-Aligned Practice with Review, Answer Keys, and Explanations



Six 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!

Six focused rounds for sharper OST math thinking

This book gives you six 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 six-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?

Six OST tests, 240 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.
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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- 1) Point G is translated by $(-5, 2)$ and ends up at $(1, -4)$. What were the original coordinates of G ?
- ☐ A. $(-4, -2)$ ☐ C. $(-6, 6)$
☐ B. $(6, -6)$ ☐ D. $(6, -2)$
- 2) A company has 250 employees. If 12% work in the office and the rest work remotely, how many work remotely?
- ☐ A. 30 ☐ C. 162
☐ B. 88 ☐ D. 220
- 3) If $5x + b = 20$ and $x = 2$, what is b ?
- ☐ A. $b = 5$ ☐ C. $b = 15$
☐ B. $b = 10$ ☐ D. $b = 20$
- 4) Which simulation tool best models the probability of selecting a red marble or a blue marble from a bag with equal numbers of red and blue marbles?
- ☐ A. Rolling a standard die once ☐ D. Drawing two cards from a deck without replacing the first
☐ B. Flipping a coin
☐ C. Spinning a spinner with 10 equal sections
- 5) A city government wants to estimate the median rent paid by tenants in the city. To get a representative sample, it should:
- ☐ A. Interview landlords only ☐ C. Survey tenants at one large apartment complex
☐ B. Randomly select addresses from all rental properties ☐ D. Ask real estate agents for a list of typical rents



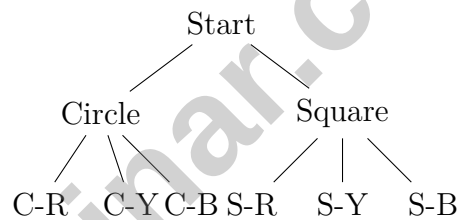
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- 6) A pictograph uses one star symbol to represent 50 students. If there are 12 stars shown for 7th grade, how many seventh-grade students are there?

☐ A. 12 students ☐ C. 62 students
☐ B. 50 students ☐ D. 600 students

- 7) A circle has radius 7 cm. Find its circumference using $\pi \approx \frac{22}{7}$.

- 8) A tree diagram shows all outcomes for selecting a shape (Circle or Square) and a color (Red, Yellow, or Blue). How many final branches should the tree have?



☐ A. 2 branches ☐ C. 5 branches
☐ B. 3 branches ☐ D. 6 branches

- 9) A semicircle has a radius of 8 inches. What is its area? (Use $\pi \approx 3.14$.)



- 10) A school must choose between two lunch-line systems. System A averages 8 minutes wait with MAD 0.5 minutes. System B averages 8.2 minutes with MAD 1.8 minutes. For student experience, which is better?

☐ A. System B (slightly faster average) ☐ C. Both are equally acceptable
☐ B. System A (consistent experience, predictable waits) ☐ D. Requires knowing the number of students

- 11) A rectangular prism has length 9 m, width 4 m, and height 6 m. What is its surface area in square meters?



- 12) A bag contains 12 candies: 5 cherry, 4 lemon, and 3 lime. If a candy is drawn at random, what is the probability it is lemon or lime?

☐ A. $\frac{4}{12}$ ☐ C. $\frac{1}{2}$
☐ B. $\frac{7}{12}$ ☐ D. $\frac{3}{4}$

- 13) A fair six-sided die is rolled twice. What is the probability of rolling a 3 on the first roll AND a 5 on the second roll?

☐ A. $\frac{1}{6}$ ☐ C. $\frac{1}{36}$
☐ B. $\frac{1}{12}$ ☐ D. $\frac{1}{18}$



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- 1) A school has 280 students. If 35% are in 7th grade, how many 7th graders are there?
- ☐ A. 70 ☐ C. 98
☐ B. 78 ☐ D. 105
- 2) Two similar triangles have corresponding sides of 6 cm and 9 cm. The smaller triangle has a perimeter of 18 cm. What is the perimeter of the larger triangle?
- ☐ A. 24 cm ☐ C. 30 cm
☐ B. 27 cm ☐ D. 36 cm
- 3) A basketball player's scoring average was 18 points per game. After training, it increased to 27 points per game. What is the percent increase?
- ☐ A. 33.3% ☐ C. 66.7%
☐ B. 9% ☐ D. 50%
- 4) A simulation estimates the probability of an event to be 0.40 based on 250 trials. In another simulation with the same event and 1000 trials, the estimated probability is 0.38. Which statement is true?
- ☐ A. The first simulation is more accurate ☐ C. Both simulations must have made errors
☐ B. The second simulation is more reliable because it uses more trials ☐ D. The true probability is exactly 0.39
- 5) A beverage vendor mixes drinks using one flavor (Cherry, Lime, or Orange) and one temperature (Hot or Cold). A customer drinks 3 of the 6 possible combinations. How many combinations remain untasted?
- ☐ A. 2 ☐ C. 4
☐ B. 3 ☐ D. 5



- 6) A teacher randomly selects two students without replacement from a class of 12 to give a presentation. If 7 students are prepared, what is the probability both selected are prepared?

☐ A. $\frac{49}{144}$

☐ C. $\frac{42}{120}$

☐ B. $\frac{7}{12} \cdot \frac{6}{12}$

☐ D. $\frac{7}{22}$

- 7) A scout estimated that a hiking trail is 7.5 miles long, but the actual length is 8.25 miles. What is the percent error?

☐ A. 90.9%

☐ C. 0.75%

☐ B. 10%

☐ D. 9.1%

- 8) A student expanded $-2(x - 3)$ as $-2x - 6$. The diagram below shows the correct distribution. What is the correct answer?

$$\begin{array}{rcl}
 & -2(x - 3) & \\
 & \downarrow & \\
 \begin{array}{r} -2 \cdot x \\ \downarrow \\ -2x \end{array} & & \begin{array}{r} -2 \cdot (-3) \\ \downarrow \\ +6 \end{array} \\
 & & \text{negative} \times \text{negative} = \text{positive} \\
 & -2x + 6 &
 \end{array}$$

☐ A. $-2x + 6$

☐ C. $2x - 6$

☐ B. $-2x - 6$

☐ D. $2x + 6$

- 9) Construct a stem-and-leaf plot from the ordered data $\{56, 58, 61, 64, 67, 69, 72, 75\}$ using stems 5, 6, 7. How many leaves appear under Stem 6?



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1) Which equation matches the description: “A number is multiplied by 5, then 12 is subtracted, and the result is 28”?

☐ A. $5x - 12 = 28$

☐ C. $12 - 5x = 28$

☐ B. $5x + 12 = 28$

☐ D. $\frac{x}{5} - 12 = 28$

2) Solve: $\frac{1}{3}x - 2 = 4$

☐ A. $x = 6$

☐ C. $x = 18$

☐ B. $x = 12$

☐ D. $x = 24$

3) A scale model of a car is drawn at a scale of 1 in : 5 ft. If the model is 8 inches long, what is the length of the actual car?

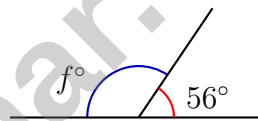
☐ A. 13 ft

☐ C. 45 ft

☐ B. 40 ft

☐ D. 64 ft

4)



A ray splits a straight angle into two adjacent angles. One angle is marked as 56° . What is angle f ?

☐ A. 34°

☐ C. 90°

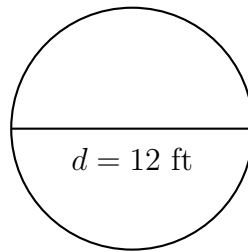
☐ B. 56°

☐ D. 124°



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circumference =?

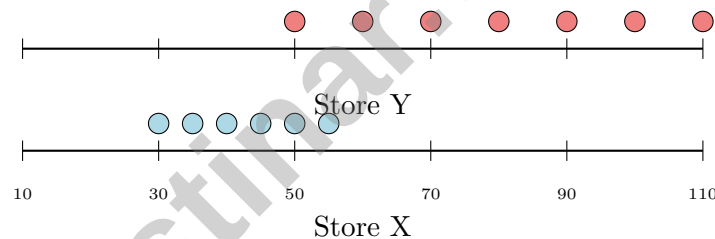


5)

A circular garden has diameter 12 feet. The gardener knows the full circumference. Using $\pi \approx 3.14$, what is the circumference?

☐ A. 18.84 ft☐ C. 113.04 ft☐ B. 37.68 ft☐ D. 452.16 ft

- 6) Two dot plots show ages of customers at two stores (scale: coordinate 0 = age 10, coordinate 2 = age 30, coordinate 4 = age 50, etc.):



The distributions:

☐ A. Have the same center and spread☐ C. Show Store X customers are younger and more tightly clustered☐ B. Are completely separate with no overlap☐ D. Show Store Y has identical variability to Store X

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 B is correct.** (7.G.1-7.G.5) If $G + (-5, 2) = (1, -4)$, then $G = (1, -4) - (-5, 2) = (1 - (-5), -4 - 2) = (1 + 5, -6) = (6, -6)$.
- 2) **Choice D is correct.** (7.RP.3) Office workers: $\frac{12}{100} \times 250 = 30$. Remote workers: $250 - 30 = 220$.
- 3) **Choice B is correct.** (7.EE.3-7.EE.4) Substitute $x = 2$: $5(2) + b = 20 \Rightarrow 10 + b = 20 \Rightarrow b = 10$.
- 4) **Choice B is correct.** (7.SP.5-7.SP.8) Two equally likely outcomes (red or blue, heads or tails) match perfectly.
- 5) **Choice B is correct.** (7.SP.1-7.SP.4) A random sample of all rental addresses (not just one complex) ensures all neighborhoods and rent levels are represented, avoiding bias.
- 6) **Choice D is correct.** (7.SP.1-7.SP.4) $12 \text{ stars} \times 50 \text{ students/star} = 600 \text{ students}$.
- 7) **The correct answer is 44.** (7.G.4-7.G.6) $C = 2\pi r = 2 \times \frac{22}{7} \times 7 = 2 \times 22 = 44 \text{ cm}$.
- 8) **Choice D is correct.** (7.SP.5-7.SP.8) Each of the 2 shapes branches into 3 color outcomes. Total: $2 \times 3 = 6$ final branches.
- 9) **The correct answer is 100.48.** (7.G.4-7.G.6) Full circle: $A = 3.14 \times 8^2 = 3.14 \times 64 = 200.96 \text{ in}^2$. Semicircle: $\frac{200.96}{2} = 100.48 \text{ in}^2$.
- 10) **Choice B is correct.** (7.SP.1-7.SP.4) System A's small MAD (0.5 min) means students wait reliably 8 minutes. System B's large MAD (1.8 min) means unpredictable waits: some 6 min, some 10+ min. Consistency matters for user experience.
- 11) **The correct answer is 228.** (7.G.4-7.G.6) $SA = 2(9 \cdot 4 + 9 \cdot 6 + 4 \cdot 6) = 2(36 + 54 + 24) = 2(114) = 228 \text{ m}^2$.
- 12) **Choice B is correct.** (7.SP.5-7.SP.8) Lemon or lime $= 4 + 3 = 7$. $P(\text{lemon or lime}) = \frac{7}{12}$.
- 13) **Choice C is correct.** (7.SP.5-7.SP.8) $P(3) \cdot P(5) = \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$ for independent events.
- 14) **Choice B is correct.** (7.SP.1-7.SP.4) In a back-to-back plot, Class A's leaves for stem 8 are 6, 3, 1, representing 86, 83, 81. One of these is 83.
- 15) **Choice C is correct.** (7.SP.6) Experimental probability $= \frac{84}{150} = 0.56$. The relative frequency of drawing red guides our prediction for future draws.
- 16) **Choice C is correct.** (7.SP.5-7.SP.8) A probability of 0.1 is very low, so the event is unlikely to occur.
- 17) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{84}{200} = \frac{x}{50000}$. Reduce: $\frac{21}{50} = \frac{x}{50000} \Rightarrow x = 21000$.
- 18) **Choice D is correct.** (7.RP.3) Percent error $= \frac{|12-10|}{10} \times 100\% = \frac{2}{10} \times 100\% = 20\%$.
- 19) **The correct answer is A,B.** (7.G.1-7.G.5) Statements A and B are correct. Corresponding sides in similar figures are proportional, and corresponding angles are congruent. C is wrong because angles don't change with scale. D is partially stated in A.
- 20) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute 2 to all three terms: $2(x) + 2(3) + 2(4) = 2x + 6 + 8 = 2x + 14$.
- 21) **The correct answer is 157.** (7.G.4-7.G.6) $V = \pi r^2 h \approx 3.14 \times (2.5)^2 \times 8 = 3.14 \times 6.25 \times 8 = 157 \text{ m}^3$.
- 22) **Choice D is correct.** (7.RP.3) $I = 10000 \times 0.072 \times 2.5 = \1800 .
- 23) **Choice D is correct.** (7.NS.1-7.NS.3) $8 - (-1) = 8 + 1 = 9$.
- 24) **Choice D is correct.** (7.RP.3) The discount is 40% of \$80: $0.40 \times 80 = 32$ dollars.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) Multiply each dimension by the scale factor: $8 \times 2.5 = 20$ inches; $6 \times 2.5 = 15$ inches.
- 26) **Choice D is correct.** (7.NS.1b) Moving left on a number line means adding a negative: $4 + (-11) = -7$. You land at -7.
- 27) **Choice D is correct.** (7.EE.1-7.EE.2) Substitute: $5(2) + 3(-1) - 2 = 10 - 3 - 2 = 5$.
- 28) **Choice A is correct.** (7.EE.1) Combine: $(-3 + 5 - 1 + 2)x = 3x$.
- 29) **Choice A is correct.** (7.EE.1-7.EE.2) The GCF of 16, 24, and 8 is 8. Factor: $16a + 24b + 8 = 8(2a + 3b + 1)$.
- 30) **Choice C is correct.** (7.SP.1-7.SP.4) 50% of 10,000 $= 0.50 \times 10,000 = 5000$ visitors.
- 31) **Choice D is correct.** (7.RP.1-7.RP.3) $y = \frac{3}{5}(25) = \frac{75}{5} = 15$.



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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 6 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 **6** 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:

6 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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