9 Ohio OST

GRADE 7

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

Program

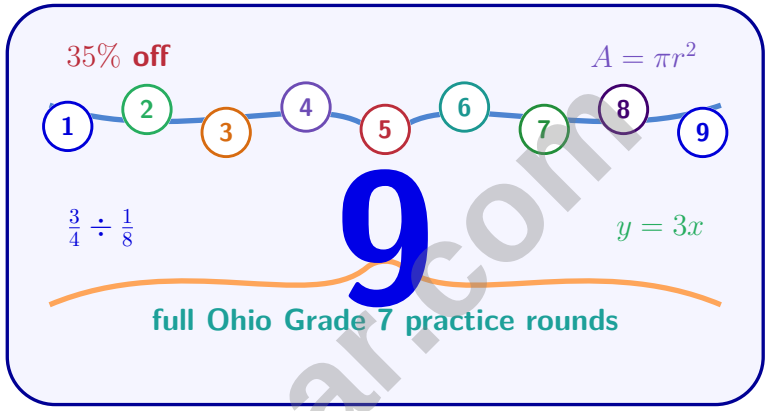
9 PRINTED TESTS + **2 ONLINE TESTS**

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

- **BUILT FOR ACAP** Standards-Aligned
- **STRENGTHEN SKILLS**
- **SHARPEN THINKING**
- **BE TEST-READY** Improve Performance

9 Ohio OST Grade 7 Math Practice Tests

Standards-Aligned Ohio Practice for Proportional Reasoning, Expressions, Geometry, Statistics, and Probability



Nine 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!

Nine focused rounds for sharper OST math thinking

This book gives you nine 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.

How to Use This Book

A nine-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?

Nine OST tests, 360 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 7–9	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.

Table of Contents

1) A recipe calls for $\frac{1}{2}$ cup of flour for every $\frac{1}{4}$ cup of sugar. Which ratio represents the proportional relationship?

☐ A. 1 : 2
☐ B. 1 : 4
☐ C. 4 : 1
☐ D. 2 : 1

2) A researcher flipped three coins 160 times and recorded how many came up heads each time:

Heads Count	0	1	2	3
Frequency	22	56	62	20

What is the experimental probability of getting exactly 2 heads?

☐ A. $\frac{2}{3}$
☐ B. $\frac{62}{160}$
☐ C. 0.31
☐ D. 0.39

3) A trapezoidal prism has a base with parallel sides of 7 cm and 9 cm and height 4 cm. The prism has a depth of 5 cm. What is the volume?

☐ A. 320 cm^3
☐ B. 240 cm^3
☐ C. 160 cm^3
☐ D. 80 cm^3

4) Which segment is NOT a chord?

☐ A. A diameter
☐ B. A radius
☐ C. A segment with both endpoints on the circle
☐ D. A segment through the center connecting two points on the circle

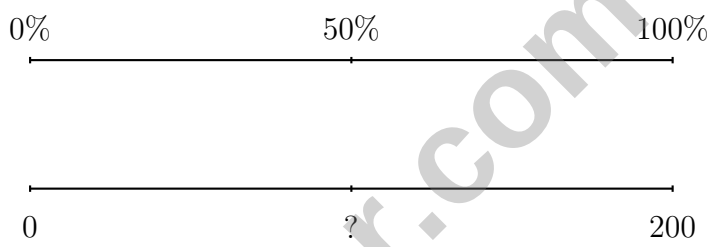
5) A survey shows there is a 20% chance that a student brings lunch to school. What is this probability as a simplified fraction?

☐ A. $\frac{20}{100}$
☐ B. $\frac{1}{5}$
☐ C. $\frac{1}{20}$
☐ D. $\frac{20}{80}$

6) A savings account earns \$75 in interest from a principal of \$500 at an annual rate of 5%. How many years has the money been in the account?

☐ A. 1.5 years
☐ B. 2 years
☐ C. 2.5 years
☐ D. 3 years

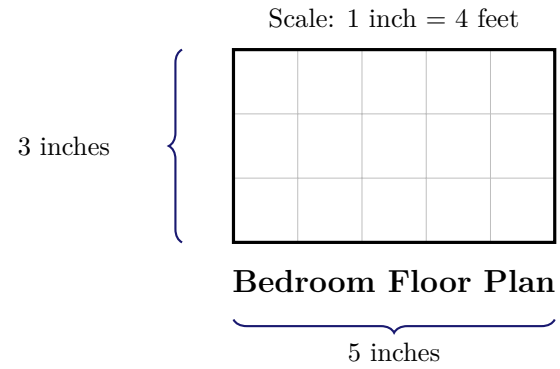
7)



The double number line shows percents and values. What is 50% of 200?

☐ A. 50
☐ B. 75
☐ C. 100
☐ D. 150

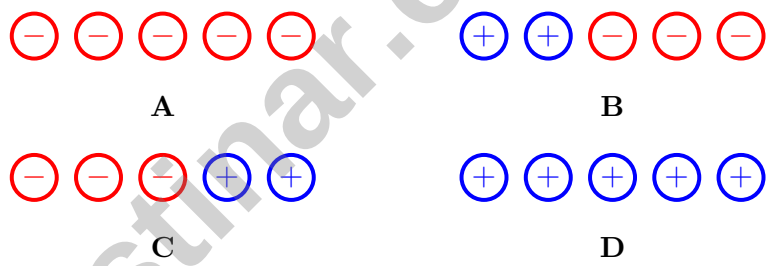
8)



According to the floor plan, what is the actual area of the bedroom?

☐ A. 15 square feet
☐ B. 60 square feet
☐ C. 120 square feet
☐ D. 240 square feet

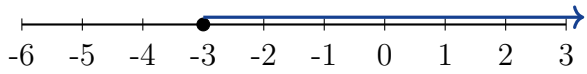
9) A chip model shows $-2 + (-3)$. Which diagram is correct?



10) A vending machine dispenses 200 ounces of soda in 4 seconds. What is the rate (constant of proportionality) in ounces per second?

☐ A. $k = 0.02$
☐ B. $k = 200$
☐ C. $k = 4$
☐ D. $k = 50$

1) Use the number line to determine the inequality. At -3 is a closed circle, and the solution extends right.



☐ A. $x > -3$
☐ B. $x < -3$
☐ C. $x \geq -3$
☐ D. $x \leq -3$

2) A student incorrectly says a graph shows a proportional relationship. The student made an error. What was it?
The graph shows a line from $(0, 2)$ to $(4, 10)$.

☐ A. The line is too steep
☐ B. The points are not whole numbers
☐ C. The line has negative slope
☐ D. The line does not pass through the origin

3) A store sells $\frac{3}{5}$ pound of cheese for \$6. What is the unit price per pound?

☐ A. \$9
☐ B. \$3.60
☐ C. \$4
☐ D. \$10

4) A streaming service charges a proportional rate. If 8 months of service costs \$96, what is the constant of proportionality (cost per month)?

☐ A. \$8
☐ B. \$10
☐ C. \$16
☐ D. \$12

5) A square pyramid has a square base with side length 6 in, and slant height 8 in. Find the surface area (include the base).

☐ A. 96 in^2
☐ B. 132 in^2
☐ C. 168 in^2
☐ D. 240 in^2

6) A simulation models the probability of a customer making a purchase as $\frac{2}{5}$. Which of the following spinners would be most appropriate for this simulation?

☐ A. A spinner with 3 equal sections, 1 shaded
☐ B. A spinner with 5 equal sections, 2 shaded
☐ C. A spinner with 10 equal sections, 4 shaded
☐ D. A spinner with 5 equal sections, 3 shaded

7) Which inequality represents "the sum of a number and 2 is not equal to 7"?

☐ A. $n + 2 \neq 7$
☐ B. $n + 2 = 7$
☐ C. $n \neq 5$
☐ D. $n + 7 \neq 2$

8) Simplify: $(3x + 5) + (2x - 7)$

☐ A. $5x - 2$
☐ B. $5x + 2$
☐ C. $5x - 12$
☐ D. $6x - 2$

9) Compute $2\frac{1}{3} \div \frac{5}{9}$. Show all steps: convert mixed number, apply reciprocal rule, and simplify.

1) A sports team: Season 1 has 15 wins and 8 losses. Season 2 has 18 wins and 5 losses. What is the total wins minus losses across both seasons?

☐ A. 30 net wins
☐ B. 20 net wins
☐ C. 35 net wins
☐ D. 25 net wins

2) A rectangle has width w meters. The length is $3w - 2$. If the perimeter is 28 meters, what is the width? (Hint: perimeter $= 2(\text{length}) + 2(\text{width})$)

☐ A. $w = 2$
☐ B. $w = 3$
☐ C. $w = 4$
☐ D. $w = 5$

3) A blueprint uses a scale of $\frac{1}{8}$ inch : 1 foot. If a wall in the blueprint is 2 inches long, what is the actual length of the wall?

☐ A. 8 feet
☐ B. 12 feet
☐ C. 16 feet
☐ D. 20 feet

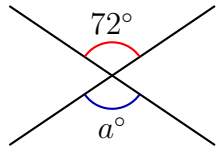
4) A rectangular field is drawn at scale 1 cm : 10 m. The drawing is 5 cm by 7 cm. If the scale is changed to 1 cm : 5 m, what is the ratio of the new drawing area to the old drawing area?

☐ A. 1 : 1
☐ B. 2 : 1
☐ C. 4 : 1
☐ D. 1 : 4

5) A triangular prism with an equilateral triangular base (side 5 cm) and height 10 cm is sliced parallel to its triangular base. What is the shape of the cross-section?

☐ A. Equilateral triangle
☐ B. Rectangle
☐ C. Trapezoid
☐ D. Irregular pentagon

6)



Two lines intersect forming vertical angles. One angle is 72°. What is the measure of the vertically opposite angle a?

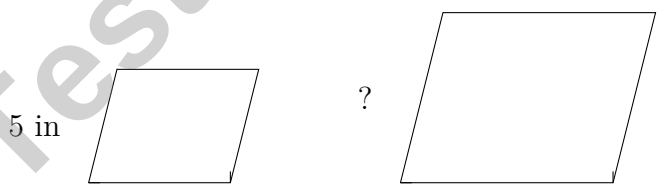
☐ A. 18°
☐ B. 72°
☐ C. 108°
☐ D. 180°

7) Simplify $(-2) \times 3 \times (-\frac{1}{3})$.

8) If $H(5, -2)$ is reflected over the line $y = -x$, what is the image?

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

9)



Two similar parallelograms are shown. If the scale factor is 1.5, what is the height of the larger parallelogram?

☐ A. 6.5 in
☐ B. 7.5 in
☐ C. 8 in
☐ D. 8.5 in

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.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice D is correct.** 7.RP.1-7.RP.3 Divide: $\frac{1/2}{1/4} = \frac{1}{2} \times \frac{4}{1} = 2$. For every 1 cup sugar, you need 2 cups flour.
2) **Choice B is correct.** 7.SP.6 Getting exactly 2 heads occurred 62 times in 160 trials. Experimental probability $= \frac{62}{160} = 0.3875 \approx 0.39$.
3) **Choice C is correct.** 7.G.4-7.G.6 Base area $= \frac{1}{2}(7+9) \times 4 = \frac{1}{2} \times 16 \times 4 = 32$ cm^2. Volume $= 32 \times 5 = 160$ cm^3.
4) **Choice B is correct.** 7.G.4-7.G.6 A radius has one endpoint at the center and one on the circle, not both on the circle, so it is not a chord.
5) **Choice B is correct.** 7.SP.5-7.SP.8 $20\% = \frac{20}{100} = \frac{1}{5}$ (simplified).
6) **Choice D is correct.** 7.RP.3 Using $I = Prt$: $75 = 500 \times 0.05 \times t \Rightarrow 75 = 25t \Rightarrow t = 3$.
7) **Choice C is correct.** 7.RP.3 50% is half; half of 200 is 100.
8) **Choice D is correct.** 7.RP.1-7.RP.3 Actual dimensions: $5 \times 4 = 20$ feet; $3 \times 4 = 12$ feet. Area $= 20 \times 12 = 240$ sq ft.
9) **Choice A is correct.** 7.NS.1b For $-2 + (-3)$, we combine 2 negative chips with 3 negative chips for a total of 5 negative chips, representing -5. Option A shows this correctly.
10) **Choice D is correct.** 7.RP.1-7.RP.3 Rate is $\frac{200 \text{ oz}}{4 \text{ sec}} = 50$ ounces per second.
11) **Choice D is correct.** 7.RP.3 On a proportional double number line, the ratio is constant: $\frac{60}{75} = \frac{4}{5}$. For 25: set up $\frac{25}{x} = \frac{75}{60}$, so $x = 20$.
12) **Choice D is correct.** 7.RP.3 Deficit $= \$2{,}100 - \$1{,}800 = \$300$.
13) **Choice A is correct.** 7.NS.1-7.NS.3 $21{,}000 > 3{,}500$, so 2.1×10^4 is larger.
14) **Choice C is correct.** 7.G.1-7.G.5 Multiply the drawing length by the scale: $7 \times 4 = 28$ m.
15) **Choice A is correct.** 7.G.1-7.G.5 Scale factor $= \frac{19.5}{13} = 1.5$. Corresponding leg $= 5 \times 1.5 = 7.5$ cm.
16) **Choice C is correct.** 7.G.4-7.G.6 $A = \pi r^2 = 3.14 \times 3^2 = 3.14 \times 9 = 28.26$ in^2.
17) **Choice D is correct.** 7.RP.1-7.RP.3 From the first pair: $\frac{2/3}{1/5} = \frac{2}{3} \times 5 = \frac{10}{3}$ mph.
18) **Choice A is correct.** 7.NS.1-7.NS.3 Net change = Final temp − Initial temp $= -2 - (-4) = -2 + 4 = 2°$C.
19) **The correct answer is A,C.** 7.G.4-7.G.6 Large square: $20 \times 20 = 400$ m^2 (A). Small square: $5 \times 5 = 25$ m^2. Remaining: $400 - 25 = 375$ m^2 (C). The cutout is $\frac{25}{400} = \frac{1}{16}$ of the original area, not $\frac{1}{20}$.
20) **Choice B is correct.** 7.NS.1-7.NS.3 $9 \times 9 = 81$, so $\sqrt{81} = 9$.
21) **Choice A is correct.** 7.NS.1-7.NS.3 Two withdrawals: $-\$12.75 - \$12.75 = -\$25.50$. New balance: $\$85.50 - \$25.50 = \$59.00$.
22) **The correct answer is** 100 **.** 7.SP.5-7.SP.8 Expected frequency: $0.5 \times 200 = 100$ times.
23) **The correct answer is** 35 **.** 7.RP.1-7.RP.3 Ratio 2 : 5: if juice = 14, then $\frac{2}{5} = \frac{14}{x}$. Cross multiply: $2x = 70$, so $x = 35$ cups water.
24) **Choice A is correct.** 7.EE.1-7.EE.2 The quotient rule requires subtracting exponents: $\frac{y^8}{y^3} = y^{8-3} = y^5$, not y^{11}. The student added exponents (product rule) instead of subtracting them (quotient rule).
25) **Choice D is correct.** 7.SP.5-7.SP.8 Rainy has probability $0.15 \neq 0$. It is the least likely, but not impossible. The others are correct.
26) **The correct answer is** 900 **.** 7.SP.1-7.SP.4 $\frac{45}{180} = \frac{x}{3600}$. Reduce: $\frac{1}{4} = \frac{x}{3600} \Rightarrow x = 900$.
27) **Choice B is correct.** 7.EE.1-7.EE.2 The decimal 0.95 means keeping 95% of the price (removing 5%). This is the same as $p - 0.05p = (1 - 0.05)p = 0.95p$. Both forms show a 5% discount: one expanded (subtract the discount), one simplified (multiply by the remaining scale factor).
28) **Choice B is correct.** 7.NS.2 Loss of \$3 per day for 5 days: $(-3) \times 5 = -15$. The total change is $-\$15$.
29) **Choice C is correct.** 7.SP.1-7.SP.4 With 24 values (even), the upper half contains positions 13–24, which is 12 values.

Hi, Confident Learner!

◇ This high-stamina book gave you nine substantial 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 **9** 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:

- **9** 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!

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

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FOR MORE PRACTICE TESTS AND LEARNING RESOURCES.

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY