

10 Oregon OSAS

GRADE
8
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

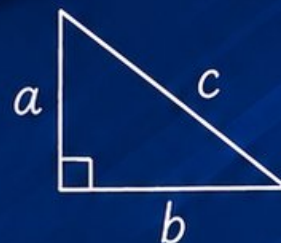
10 PRINTED
TESTS



2 ONLINE
TESTS



- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work



$$y = mx + b$$



$$3x - 7 = 2(x + 5)$$
$$x = 17$$

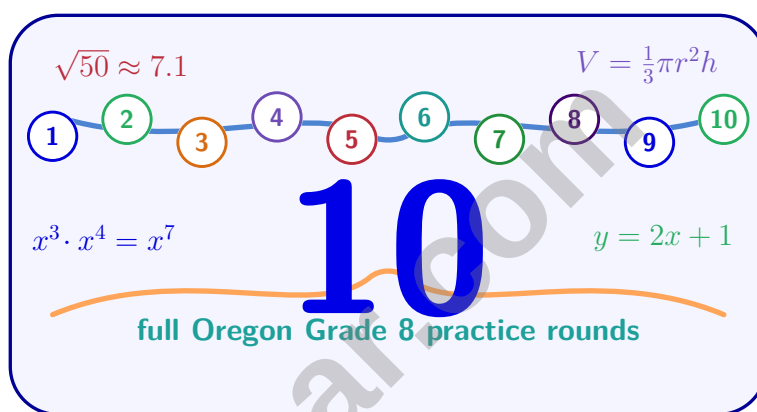


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Oregon OSAS Grade 8 Math Practice Tests

Oregon Grade 8 OSAS Practice for forest-clear practice across proportional graphs, scientific notation, algebra, geometry, data analysis, and probability



Ten complete 40-question Grade 8 OSAS practice rounds with linear relationships, scientific notation, real numbers, equations, functions, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Oregon Grade 8 Problem Solver!

Ten focused rounds for sharper Oregon OSAS math thinking

This book gives you ten full Grade 8 OSAS math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **Finding Distance with the Pythagorean Theorem** (8.GM.B.8): Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. It also prepares you for **Properties of Integer Exponents** (8.AEE.A.1): Know and apply the properties of integer exponents to generate equivalent numerical expressions.

Your Oregon 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 ten-session plan for confident Grade 8 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.

Grade 8 standards focus: Keep the routine connected to **Fitting a Line to Data** (8.DR.C.3): Know that straight lines are widely used to model relationships between two quantitative variables. Informally fit a straight line for scatter plots that suggest a linear association. Another recurring target is **Slope as Rate of Change** (8.AFN.B): Understand slope as a constant rate of change between two quantities.

Oregon 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?

Ten Oregon OSAS tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Oregon round to show growth across the whole book.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.

Grade 8 standards focus: Use these habits while practicing **Personal Financial Literacy** (8.AEE.A.1): Apply the properties of integer exponents using powers of 10 to generate equivalent numerical expressions. The same routine helps with **What Is a Function?** (8.AFN.A.1): Understand that a function is a rule that assigns to each input exactly one output.

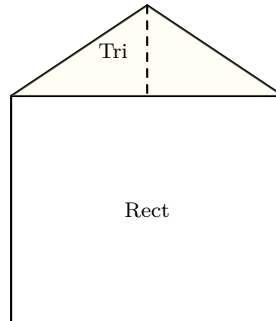


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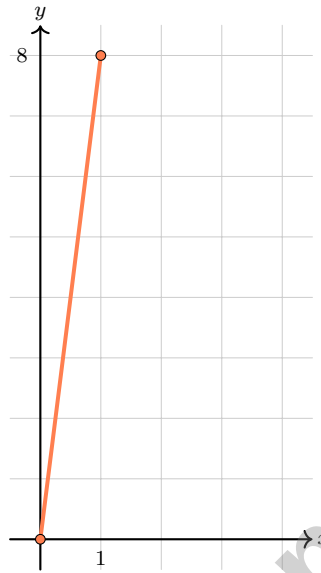
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- 1) A composite figure consists of a rectangle (6 m by 5 m) with a triangle on top (base 6 m, height 2 m). Find the total area.



- ☐ A. 30 m^2
☐ C. 39 m^2
- ☐ B. 36 m^2
☐ D. 42 m^2
- 2) A student calculates the surface area of a rectangular prism with dimensions 4 m $\times$ 3 m $\times$ 2 m as $SA = 4 \times 3 + 4 \times 2 + 3 \times 2 = 12 + 8 + 6 = 26 \text{ m}^2$. What is the student's error?
- ☐ A. Forgot to multiply by 2
 ☐ D. Added instead of multiplied all terms
- ☐ B. Calculated volume instead
- ☐ C. Used the wrong formula
- 3) $(4.5 \times 10^{-6}) \times (2 \times 10^{-4}) = ?$
- ☐ A. 9×10^{-2}
☐ C. 9×10^{-10}
- ☐ B. 6.5×10^{-10}
☐ D. 9×10^{24}





4)

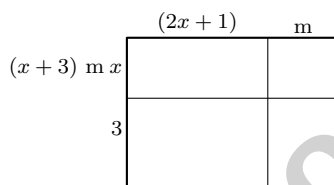
What is the slope?

☐ A. 1☐ B. 4☐ C. 8☐ D. $\frac{1}{8}$ 5) Solve for x : $\frac{2x}{3} = 8$ ☐ A. $x = 12$ ☐ B. $x = 16$ ☐ C. $x = 24$ ☐ D. $x = 6$ 6) Solve:
$$\begin{cases} y = \frac{1}{3}x + 2 \\ y = -\frac{2}{3}x + 5 \end{cases}$$
☐ A. $(2, 7/3)$ ☐ B. $(4, 10/3)$ ☐ C. $(1, 7/3)$ ☐ D. $(3, 3)$ 

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- 7) A holiday savings club requires \$50 monthly deposits for 12 months with no interest. What is the total saved?

- 8) A garden is shaped like a rectangle with length $(2x + 1)$ m and width $(x + 3)$ m. What is its area in square meters?



- ☐ A. $2x^2 + 7x + 3$
☐ C. $3x^2 + 4x + 3$
- ☐ B. $2x^2 + 3x + 7$
☐ D. $2x^2 + 6x + 3$
- 9) Interest earned: Account X: $I(m) = 0.8m$ (monthly interest in dollars). Account Y at month 0: \$0, month 12: \$10. Which earns more annually (12 months)?
- ☐ A. Account X
 ☐ C. Both earn equal
- ☐ B. Account Y
 ☐ D. Cannot be determined
- 10) If $3^a \cdot 3^5 = 3^{12}$, what is the value of a ?

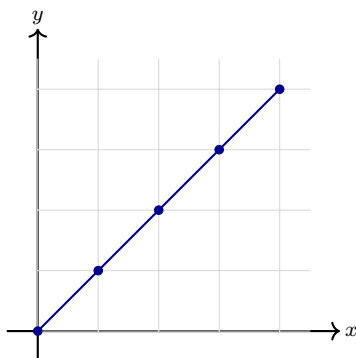


- 1) A plant height model is $h = 3t + 8$, where h is height in inches and t is time in weeks. If the data only covers weeks 1 through 10, would predicting the height at week 15 be interpolation or extrapolation?
- ☐ A. Interpolation, because 15 is within the range ☐ C. Interpolation, because we can always predict
- ☐ B. Neither, because the model breaks down ☐ D. Extrapolation, because 15 is outside the data range
- 2) A data point is at $(6, 8)$. The trend line at $x = 6$ gives a predicted value of $y = 7$. What is the residual?
- ☐ A. 14 ☐ C. 1
- ☐ B. 7 ☐ D. -1
- 3) A student dilates a triangle with scale factor 2 and claims the new triangle's perimeter is twice the original. Is this correct?
- ☐ A. No, the perimeter is multiplied by 4 ☐ C. No, the area is multiplied by 2
- ☐ B. Yes, linear measurements scale by 2 ☐ D. Only if the triangle is equilateral
- 4) The sum of two people's ages is 35. In 5 years, the older person will be twice the age of the younger person. If the younger person is currently y years old, find y .



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5) From the graph of $h(x)$, find the value of x where $h(x) = 2$.



☐ A. $x = 1$

☐ C. $x = 3$

☐ B. $x = 2$

☐ D. $x = 4$

6) Which of the following numbers is irrational?

☐ A. $\frac{3}{5}$

☐ C. $\sqrt{7}$

☐ B. $0.\bar{6}$

☐ D. $\sqrt{25}$

7) Write $0.\bar{8}$ as a fraction in simplest form.

☐ A. $\frac{1}{8}$

☐ C. $\frac{8}{99}$

☐ B. $\frac{8}{10} = \frac{4}{5}$

☐ D. $\frac{8}{9}$

8) $\sqrt{68}$ is closest to which integer?

☐ A. 7

☐ C. 9

☐ B. 6

☐ D. 8



1) Which equation represents a function where each input x has exactly one output y ?

☐ A. $x^2 + y^2 = 9$ (circle)

☐ C. $|y| = x$ (absolute value of y)

☐ B. $y = \sqrt[3]{x}$ (cube root)

☐ D. $y = \pm\sqrt{x}$ (both square roots)

2) Function $f(x) = 2x + 3$ and another through $(0, 1)$ and $(2, 7)$. Difference in slopes?

3) A gym charges a \$25 sign-up fee plus \$15 per month. Which function gives the total cost C after m months?

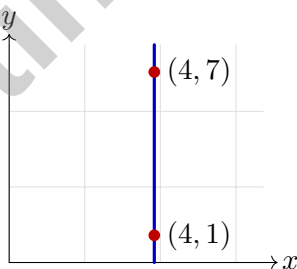
☐ A. $C = 15m + 25$

☐ C. $C = 40m$

☐ B. $C = 25m + 15$

☐ D. $C = 15m - 25$

4) A graph shows a line with an undefined slope passing through $(4, 1)$ and $(4, 7)$. Which description fits?



☐ A. The line is horizontal

☐ C. The line has zero slope

☐ B. The line is slanted at 45°

☐ D. The line is vertical

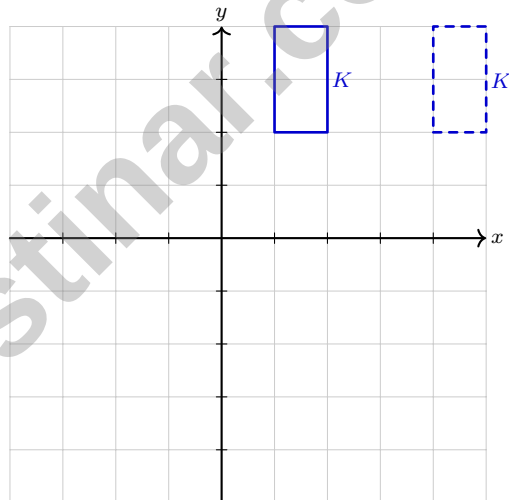


5) A store has two types of mangoes. Premium mangoes cost \$2 each, standard mangoes cost \$1 each. A customer buys 15 mangoes for \$20. Solving the system $p + s = 15$ and $2p + s = 20$ gives $p = 5, s = 10$. Is this solution valid in the real world?

- ☐ A. No, because only the first equation is satisfied. ☐ C. Yes, because it represents a realistic purchase.
- ☐ B. No, because p is not a whole number. ☐ D. No, because the total cost should be higher.

6) Rectangle MNOP has length 15 cm and width 8 cm. Rectangle M'N'O'P' is congruent to MNOP. Which of the following is NOT a possible pair of dimensions for M'N'O'P'?

- ☐ A. Length 15 cm, width 8 cm ☐ C. Length 16 cm, width 8 cm
- ☐ B. Length 8 cm, width 15 cm ☐ D. Length 15 cm, width 8 cm (rotated)



7)

Rectangle K is translated to K' . What is the translation rule?

- ☐ A. $(x, y) \rightarrow (x + 3, y)$ ☐ C. $(x, y) \rightarrow (x - 3, y - 2)$
- ☐ B. $(x, y) \rightarrow (x + 2, y + 2)$ ☐ D. $(x, y) \rightarrow (x + 3, y + 1)$



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Oregon OSAS Grade 8 Practice Test Answer Keys**How to use this section with a Grade 8 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 Oregon OSAS practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (8.GM.A.3) Rectangle area = $6 \times 5 = 30 \text{ m}^2$. Triangle area = $\frac{1}{2} \times 6 \times 2 = 6 \text{ m}^2$. Total = $30 + 6 = 36 \text{ m}^2$.
- 2) **Choice A is correct.** (8.GM.A.3) The student calculated the sum of the three different face areas but forgot to double each (since there are two of each face). The correct calculation is $SA = 2(12 + 8 + 6) = 52 \text{ m}^2$.
- 3) **Choice C is correct.** (8.AEE.A.4) Multiply coefficients: $4.5 \times 2 = 9$. Add exponents: $10^{-6+(-4)} = 10^{-10}$. Result: 9×10^{-10} .
- 4) **Choice C is correct.** (8.AEE.B.5) Slope = $\frac{8-0}{1-0} = 8$. This is a steep line passing through (0, 0) and (1, 8).
- 5) **Choice A is correct.** (8.AEE.C) Multiply both sides by 3: $2x = 24$. Divide by 2: $x = 12$.
- 6) **Choice D is correct.** (8.AEE.C.8) Set the expressions equal: $\frac{1}{3}x + 2 = -\frac{2}{3}x + 5$. Add $\frac{2}{3}x$ to both sides: $x + 2 = 5$, so $x = 3$. Then $y = \frac{1}{3}(3) + 2 = 3$. Solution: (3, 3).
- 7) **The correct answer is \$600.** (8.AEE.A.1) $50 \times 12 = \$600$.
- 8) **Choice A is correct.** (8.AEE.B.6) Area = $(2x + 1)(x + 3) = 2x^2 + 6x + x + 3 = 2x^2 + 7x + 3 \text{ m}^2$.
- 9) **Choice B is correct.** (8.AFN.A.2) $I_X(12) = 0.8(12) = 9.60$ dollars. Slope of Y: $(10 - 0)/12 \approx 0.833$ per month, so $I_Y(12) = 10$ dollars. Since $10 > 9.60$, Account Y earns more.
- 10) **The correct answer is 7.** (8.AEE.A.1) Using the product rule, $a + 5 = 12$, so $a = 7$. Verification: $3^7 \cdot 3^5 = 3^{12}$.
- 11) **Choice C is correct.** (8.AFN.A.3) In $y = 2^x$, x is an exponent (not the variable being exponentiated). This is an exponential function, not linear. Linear requires $y = mx + b$ form.
- 12) **Choice B is correct.** (8.AFN.B.5) From $x = 2$ to $x = 4$: change is from 3 to 1, a drop of 2 over 2 units (slope = -1). From 0 to 2: rise of 3. From 4 to 6: rise of 3. The only decreasing segment is 2 to 4.
- 13) **Choice B is correct.** (8.GM.A.2) Congruent figures have equal corresponding sides. The side corresponding to PQ in pentagon $UVWXY$ is UV , and it must equal 8 cm.
- 14) **The correct answer is 7.** (8.AEE.A) $\sqrt[3]{343} = 7$ because $7 \times 7 \times 7 = 343$.
- 15) **Choice A is correct.** (8.GM.A.3) Checking: $(1, 2) \rightarrow (-1, -2)$, $(3, 2) \rightarrow (-3, -2)$, $(2, 4) \rightarrow (-2, -4)$. All points follow the rule $(x, y) \rightarrow (-x, -y)$, confirming 180° rotation.
- 16) **Choice B is correct.** (8.GM.A.5) The exterior angle at B is supplementary to the interior angle B : exterior angle = $180 - 70 = 110^\circ$. Alternatively, exterior angle = $\angle A + \angle C = 55 + 55 = 110^\circ$.
- 17) **Choice B is correct.** (8.GM.B.8) Since both points have $y = 5$, the horizontal distance is $|12 - 0| = 12$.
- 18) **The correct answer is A, C.** (8.GM.B.8) A is correct: MAD is the average absolute deviation from the mean. C is correct: it restates this in slightly different language. B is incorrect: MAD is not about range. D is incorrect: MAD is the mean, not median, of deviations. E is incorrect: MAD is symmetric around the mean regardless of median position.
- 19) **Choice B is correct.** (8.GM.C.9) Sphere: $V = \frac{4}{3} \times 3.14 \times 8 = 33.49 \text{ cm}^3$. Cylinder: $V = 3.14 \times 4 \times 8 = 100.48 \text{ cm}^3$. Cylinder is larger.
- 20) **Choice B is correct.** (8.GM.B.7) Vertical angles are congruent. When two lines intersect, opposite angles are equal, so $a = 110^\circ$.
- 21) **Choice B is correct.** (8.GM.C.9) The student forgot the $\frac{1}{3}$ factor. Correct: $V = \frac{1}{3} \times 50 \times 12 = 200 \text{ ft}^3$.
- 22) **Choice C is correct.** (8.GM.A.5) Each interior angle of a regular octagon: $\frac{(8-2) \times 180}{8} = \frac{1080}{8} = 135^\circ$.
- 23) **Choice C is correct.** (8.DR.D.4) Negative correlation between temperature and cost means as temperature increases, cost decreases, which is logical for heating costs.
- 24) **Choice B is correct.** (8.AFN.B.4) The data shown covers speeds 1–5 mph. Predicting at 60 mph is extreme extrapolation, where the linear model's assumptions break down.
- 25) **Choice C is correct.** (8.AFN.A.1) A point has one x -value with one y -value, so it passes the vertical line test. A vertical line is not a function (fails VLT). Circles and ellipses fail the VLT.
- 26) **Choice A is correct.** (8.AFN.B.4) Slope: $\frac{48-24}{2-1} = 24$ cupcakes per hour. The line passes through the origin (when $h = 0$, $c = 0$). Equation: $c = 24h$.



Hi, Math Communicator!

◇ Grade 8 math is not only about getting a number. It is about explaining relationships and making your reasoning visible. ◇

★ **Remember this:** When you show steps, label diagrams, and write clear answers, you are joining the conversation that math is trying to have. You practiced across 10 full Grade 8 practice tests, and that repeated effort matters. ★

Communication Skills

- **Use Words:** Explain what the answer means.
- **Use Symbols:** Keep equations accurate.
- **Use Diagrams:** Show relationships visually.
- **Use Units:** Connect math to context.

Grade 8 test-day tip: For open-ended questions, answer in a complete thought: value, unit, and reason.

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

Jay Daie

Your Math Communication Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 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:

10

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.



**Master
Key Skills**

Develop strong math skills and problem solving abilities.



**Improve
Understanding**

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



**Test
Strategies**

Learn proven strategies to approach every question with confidence.



**Boost
Performance**

Apply your knowledge and achieve your best score!

TOPICS COVERED

- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Inequalities
- ✓ Functions
- ✓ Geometry
- ✓ Ratios & Proportions
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement
- ✓ Pythagorean Theorem
- ✓ Surface Area & Volume
- ✓ 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!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY