

# 3

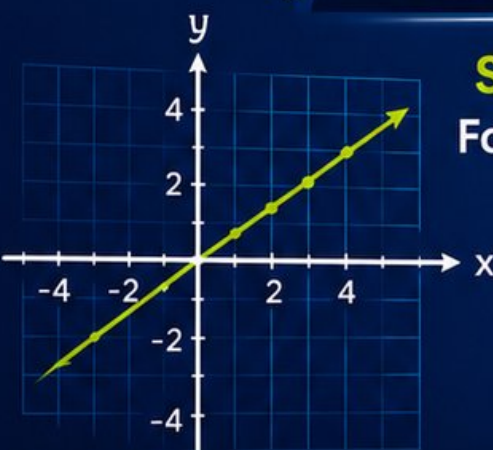
# Oregon OSAS

## GRADE 8

# MATH

## PRACTICE TESTS

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



$$V = s^3$$



$$y = mx + b$$
$$2x + 5 = 13$$
$$x = 4$$



# 3

**PRINTED  
TESTS**



# 2

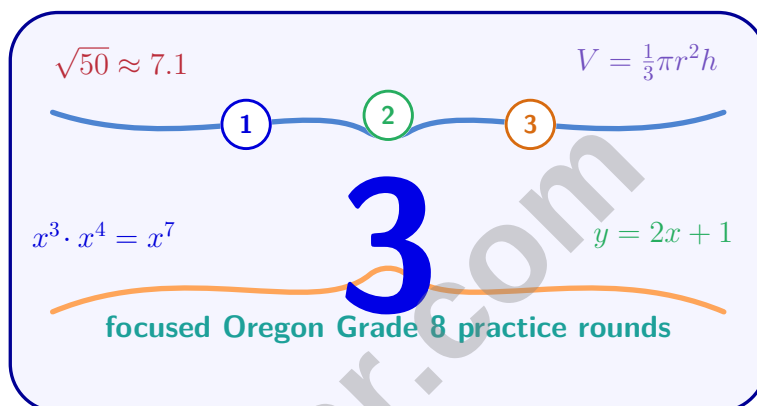
**ONLINE  
TESTS**



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

# 3 Oregon OSAS Grade 8 Math Practice Tests

*Focused OSAS Prep for Grade 8 Skills and Test Confidence*



Three complete 40-question Grade 8 OSAS practice rounds with real numbers, exponents, scientific notation, equations, functions, transformations, 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!

Three focused rounds for sharper OSAS math thinking

This book gives you three full Grade 8 OSAS math practice tests. Each round is built to help you recognize structure, reason with real numbers and exponents, analyze linear relationships, connect equations with graphs, and explain your thinking with care.

## 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 three-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 an exponent rule, equation, graph, transformation, diagram, 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.

**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?

Three OSAS tests, 120 questions, and a focused review path

| Part         | What You Will Practice                                                                        |
|--------------|-----------------------------------------------------------------------------------------------|
| Tests 1–2    | Real numbers, exponents, scientific notation, equations, and careful reading.                 |
| Test 3       | Functions, systems, transformations, geometry, data analysis, and multi-step problem solving. |
| 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.

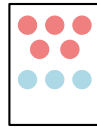


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# Table of Contents



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5 red, 3 blue

1)

A bag contains 5 red and 3 blue marbles. A marble is drawn, its color noted, replaced, then another marble is drawn. What is the probability both marbles are red?

☐ A.  $\frac{10}{64}$

☐ B.  $\frac{25}{64}$

☐ C.  $\frac{10}{16}$

☐ D.  $\frac{5}{8}$

2) A cylindrical paint can has radius 2.5 feet and height 3 feet. The paint covers only the curved side (lateral surface), not the top or bottom. Which expression gives the area that needs paint?

☐ A.  $2\pi(2.5)^2 + 2\pi(2.5)(3)$

☐ B.  $2\pi(2.5)(3)$

☐ C.  $\pi(2.5)^2 + \pi(2.5)(3)$

☐ D.  $(2.5)(3)$

3) A hexagon is translated by the vector  $(3, -2)$  and then rotated  $90^\circ$  counterclockwise about the origin. How many sides does the resulting figure have?

☐ A. 3

☐ B. 9

☐ C. 12

☐ D. 6

4) Write  $4.7 \times 10^{-4}$  in decimal (standard) form.



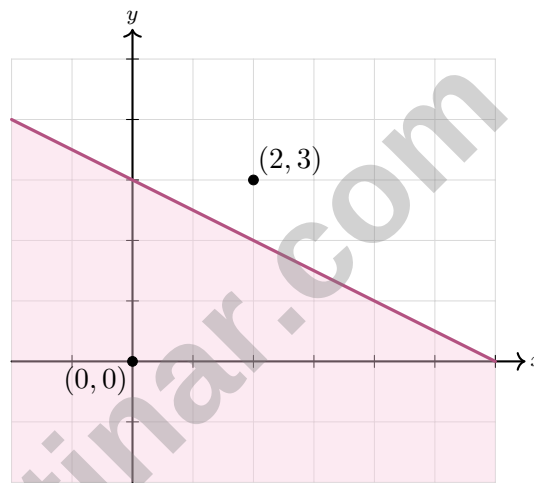
5) What is the slope of a line passing through  $(-1, 4)$  and  $(2, -2)$ ?

☐ A. 2

☐ C. 3

☐ B.  $-\frac{1}{2}$ 
☐ D. -2

6) Solve:  $\frac{x-2}{5} \leq 3$

☐ A.  $x \leq 13$ 
☐ C.  $x \leq 17$ 
☐ B.  $x \geq 13$ 
☐ D.  $x \geq 17$ 


7)

The graph has a solid line with shading below. Two points are marked:  $(0, 0)$  (in shaded region) and  $(2, 3)$  (above the line). Which inequality is graphed?

☐ A.  $y < -\frac{1}{2}x + 3$  (forgot to flip when dividing by  $-\frac{1}{2}$ )

☐ C.  $y \leq -\frac{1}{2}x + 3$  (correct)

☐ B.  $y \geq -\frac{1}{2}x + 3$  (reversed shading AND boundary inclusion)

☐ D.  $y > -\frac{1}{2}x + 3$  (solid line with shading above)


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- 8) A college savings plan earns 7% compound interest annually. If \$5,000 is invested for 10 years, approximately how much will be accumulated?

☐ A. \$8,500 ☐ C. \$11,500  
☐ B. \$13,800 ☐ D. \$9,835

- 9) Convert the mixed decimal  $0.5\overline{8}$  to a fraction in simplest form.

- 10) Which expression is equivalent to  $\frac{y^5}{y^{-2}}$ ?

☐ A.  $y^{10}$  ☐ C.  $y^{-7}$   
☐ B.  $y^3$  ☐ D.  $y^7$

- 11) Between which two consecutive integers does  $\sqrt[3]{50}$  lie?



☐ A. 2 and 3 ☐ C. 4 and 5  
☐ B. 5 and 6 ☐ D. 3 and 4

- 12) Estimate  $\sqrt{68}$  to the nearest tenth.



1) Solve for  $x$ :  $3(x + 1) = 2(x + 4)$

☐ A.  $x = 2$

☐ C.  $x = -1$

☐ B.  $x = 8$

☐ D.  $x = 5$

2) Convert  $0.1\overline{35}$  to a fraction in simplest form.

☐ A.  $\frac{1}{135}$

☐ C.  $\frac{135}{999}$

☐ B.  $\frac{135}{1000}$

☐ D.  $\frac{134}{990} = \frac{67}{495}$

3) A student estimates  $\sqrt{99} \approx 9.9$ . Is this estimate above or below the actual value?

☐ A. Too high

☐ C. Exactly correct

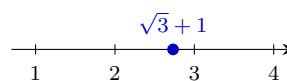
☐ B. Cannot be determined

☐ D. Too low

4) Use the table to find the value of  $x$  if  $f(x) = 7$ .

|        |   |   |   |   |
|--------|---|---|---|---|
| $x$    | 0 | 1 | 2 | 3 |
| $f(x)$ | 1 | 3 | 5 | 7 |

5) On a number line, where would  $\sqrt{3} + 1$  fall?


☐ A. Between 1 and 2

☐ C. Between 3 and 4

☐ B. Greater than 4

☐ D. Between 2 and 3


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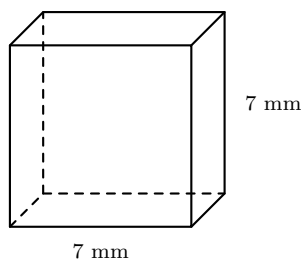
6) Which expression equals  $4.25 \times 10^{-1}$ ?

☐ A. 425

☐ C. 42.5

☐ B. 4.25

☐ D. 0.425



7)

The cube shown has an edge length of 7 mm. Calculate its surface area.

☐ A. 49 mm<sup>2</sup>

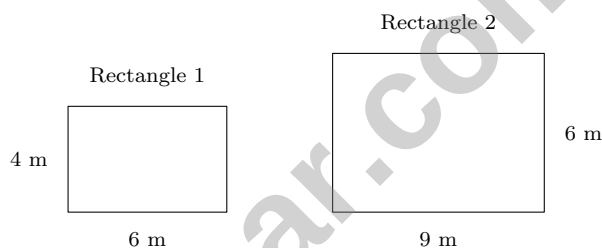
☐ C. 294 mm<sup>2</sup>

☐ B. 196 mm<sup>2</sup>

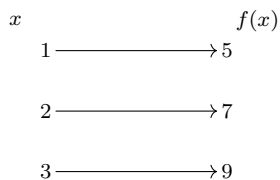
☐ D. 343 mm<sup>2</sup>



- 1) Using the model  $y = -2x + 15$ , what is the predicted  $y$ -value when  $x = 5.5$ ?
- ☐ A. 4 ☐ C. 10  
☐ B. 5 ☐ D. 26
- 2) The line of best fit through a data set is given by  $y = -1.5x + 20$ . If  $x = 4$ , what is the predicted  $y$ -value?
- ☐ A. 14 ☐ C. 26  
☐ B. 16 ☐ D. 35
- 3) Two rectangles are shown with proportional dimensions. Which similarity statement is correct?



- ☐ A. Rectangle 1  $\sim$  Rectangle 2 with scale factor 1.5 ☐ C. Rectangle 1  $\sim$  Rectangle 2 with scale factor 0.5  
☐ B. The rectangles are not similar ☐ D. They are congruent
- 4) The mapping diagram shows function  $f$ . What is  $f(2)$ ?



- ☐ A. 5 ☐ C. 9  
☐ B. 7 ☐ D. 2



5) Which is closest to  $\sqrt{40}$ ?

☐ A. 5

☐ C. 6.3

☐ B. 6

☐ D. 7

6) Convert  $0.\overline{18}$  to a fraction in simplest form.

☐ A.  $\frac{1}{18}$

☐ C.  $\frac{18}{90}$

☐ B.  $\frac{18}{100}$

☐ D.  $\frac{18}{99} = \frac{2}{11}$

7) Which two perfect squares have  $\sqrt{40}$  between them?

☐ A. 25 and 36

☐ C. 49 and 64

☐ B. 64 and 81

☐ D. 36 and 49

8) A piggy bank has nickels and dimes totaling \$2.75. There are twice as many dimes as nickels. How many nickels are in the bank?

9) Which is the best estimate of  $\sqrt{26}$ ?

☐ A. 4.5

☐ C. 5.1

☐ B. 5.0

☐ D. 6.0

10) Which list is in order from smallest to largest?

☐ A.  $3.2 \times 10^{-5}$ ,  $3.2 \times 10^1$ ,  $3.2 \times 10^{-3}$

☐ C.  $3.2 \times 10^{-3}$ ,  $3.2 \times 10^{-5}$ ,  $3.2 \times 10^1$

☐ B.  $3.2 \times 10^1$ ,  $3.2 \times 10^{-3}$ ,  $3.2 \times 10^{-5}$

☐ D.  $3.2 \times 10^{-5}$ ,  $3.2 \times 10^{-3}$ ,  $3.2 \times 10^1$



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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.AEE.A.1) With replacement:  $P(\text{red and red}) = \frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$ .
- 2) **Choice B is correct.** (8.GM.A.3) Lateral (curved side) surface area  $= 2\pi rh = 2\pi(2.5)(3)$ . Options A includes the bases; C mixes formulas; D ignores  $\pi$  entirely.
- 3) **Choice D is correct.** (8.GM.A.1) Both translation and rotation are rigid transformations that preserve the shape. The figure remains a hexagon with 6 sides.
- 4) **The correct answer is 0.00047.** (8.AEE.A.1) Move the decimal 4 places to the left:  $4.7 \times 10^{-4} = 0.00047$ .
- 5) **Choice D is correct.** (8.AEE.B.6) Slope  $= \frac{-2 - 4}{2 - (-1)} = \frac{-6}{3} = -2$ .
- 6) **Choice C is correct.** (8.AEE.C.7) Multiply by 5:  $x - 2 \leq 15$ . Add 2:  $x \leq 17$ .
- 7) **Choice C is correct.** (8.GM.B.8) SOLID boundary (includes line) + BELOW shading  $= \leq$ . Verify:  $(0, 0)$  in shaded region:  $0 \leq -\frac{1}{2}(0) + 3 = 3$  ✓ TRUE. Distractor A shows algebra error (forgot flip); B shows double error; D shows inverted shading.
- 8) **Choice D is correct.** (8.AEE.A.1)  $A = 5000(1.07)^{10} \approx 5000 \times 1.967 = \$9,835$ .
- 9) **The correct answer is  $\frac{53}{90}$ .** (8.NS.A.1) Set  $x = 0.5\bar{8} = 0.5888\dots$ . Then  $10x = 5.\bar{8}$  and  $100x = 58.\bar{8}$ . Subtracting:  $90x = 53$ , so  $x = \frac{53}{90}$ .
- 10) **Choice D is correct.** (8.AEE.A.1) Quotient rule:  $\frac{y^5}{y^{-2}} = y^{5-(-2)} = y^{5+2} = y^7$ .
- 11) **Choice D is correct.** (8.AEE.A)  $3^3 = 27$  and  $4^3 = 64$ . Since  $27 < 50 < 64$ , we have  $3 < \sqrt[3]{50} < 4$ .
- 12) **The correct answer is 8.2.** (8.NS.A.2)  $8^2 = 64$  and  $9^2 = 81$ , so  $\sqrt{68}$  is between 8 and 9. A closer estimate is about 8.246, which rounds to 8.2 to the nearest tenth.
- 13) **Choice C is correct.** (8.AEE.A.4)  $1.5 \times 10^4 \times 10 = 1.5 \times 10^{4+1} = 1.5 \times 10^5 = 150,000$ .
- 14) **Choice D is correct.** (8.AEE.B.5) Slope  $= \frac{6}{5} = 1.2$ . The line passes through  $(0, 0)$  and  $(5, 6)$ .
- 15) **Choice D is correct.** (8.AEE.C) A false statement like  $0 = 5$  means no value of the variable satisfies the equation.
- 16) **Choice C is correct.** (8.AEE.C.8) Add the equations:  $(4x + 3y) + (2x - 3y) = 18 + 6$ , so  $6x = 24$ , giving  $x = 4$ . Substitute:  $4(4) + 3y = 18$ , so  $16 + 3y = 18$ , and  $y = 2/3$ . Solution:  $(4, 2/3)$ .
- 17) **Choice A is correct.** (8.AEE.B.6) Find two numbers that multiply to 42 and add to  $-13$ :  $-6$  and  $-7$ . Verify:  $(-6)(-7) = 42$  and  $-6 - 7 = -13$ .
- 18) **Choice A is correct.** (8.AFN.A.2) Slope:  $(24 - 9)/(5 - 2) = 15/3 = 5$ . From point  $(2, 9)$ :  $9 = 5(2) + b \Rightarrow b = -1$ . Equation is  $y = 5x - 1$ .
- 19) **The correct answer is A, C.** (8.NS.A.1)  $\sqrt{169} = 13$  is rational (perfect square). The repeating decimal  $0.777\dots = \frac{7}{9}$  is rational. The other values are irrational:  $\sqrt{170}$  (non-perfect square),  $2\pi$  (irrational multiple of  $\pi$ ), and  $\sqrt{2} + 1$  (irrational plus rational is irrational).
- 20) **Choice D is correct.** (8.AFN.A.3) The presence of a square root makes this function nonlinear. Linear functions can only have  $x$  to the first power and no radicals.
- 21) **Choice A is correct.** (8.AFN.B.5) The  $y$ -intercept is where  $x = 0$ . The graph starts at the origin, so the  $y$ -intercept is  $(0, 0)$ .
- 22) **Choice B is correct.** (8.GM.A.2) Reflection across an altitude of an equilateral triangle is a rigid motion that preserves all side lengths and angles. The resulting triangle is congruent to the original: sides of 6 cm and all angles  $60^\circ$ .
- 23) **Choice A is correct.** (8.GM.A.3) Points  $(1, 1) \rightarrow (-1, 1)$  and  $(3, 3) \rightarrow (-3, 3)$ . The  $y$ -coordinates are unchanged while  $x$ -coordinates negate, confirming reflection across the  $y$ -axis.
- 24) **Choice B is correct.** (8.GM.A.5) Co-interior angles are supplementary; their sum is always  $180^\circ$ .
- 25) **Choice A is correct.** (8.GM.B.8) Distance  $= \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10$  units.
- 26) **Choice B is correct.** (8.GM.C.9) From  $V = \pi r^2 h$ , we get  $h = \frac{V}{\pi r^2} = \frac{628}{3.14 \times 25} = \frac{628}{78.5} = 8$  m.



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## Hi, Grade 8 Math Star!

◇ You finished this practice set with real effort. Grade 8 math asks you to connect ideas, explain your thinking, and stay steady through multi-step problems. ◇

★ **Remember this:** Every page you completed helped build stronger habits: reading carefully, choosing a method, showing work, and checking whether the answer makes sense. You practiced across 3 full Grade 8 practice tests, and that repeated effort matters. ★

### What You Built

- **Focus:** You stayed with challenging questions.
- **Accuracy:** You learned to slow down when details matter.
- **Reasoning:** You practiced explaining why a method works.
- **Readiness:** You are more prepared than when you started.

**Grade 8 test-day tip:** Before test day, review the questions that made you pause. Those are the best teachers.

If you want to share something or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com).

**Jay Daie**

Your Grade 8 Math Friend

# PRACTICE TODAY, ACHIEVE TOMORROW!

GRADE  
**8**

Give your child the edge they need with **3 full-length** Grade 8 Math practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, boosting confidence, and preparing for success on test day!



## WHAT'S INSIDE?



### Standards-Aligned Practice

Questions designed to cover essential Grade 8 math standards.



### Variety of Question Types

Multiple-choice, short answer, and more to build well-rounded skills.



### Real-World Applications

Engaging problems that connect math to everyday life.



### Step-by-Step Progress

Track improvement and build confidence with every test.



### Build Skills & Boost Confidence

Strengthen understanding and feel prepared for test day.

## COVERS ALL ESSENTIAL TOPICS

- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Ratios & Proportional Relationships
- ✓ Linear Equations
- ✓ Functions
- ✓ Geometry
- ✓ Measurement & Data
- ✓ Statistics & Probability
- ✓ Pythagorean Theorem
- ✓ Volume & Surface Area
- ✓ Transformations
- ✓ Inequalities
- ✓ Data Analysis & Graphing
- ✓ And More!



### 2 Extra Online Practice Tests Included!

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

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## PRACTICE. PREPARE. SUCCEED.



**Testinar**

More Practice. More Confidence.  
Better **Results**.