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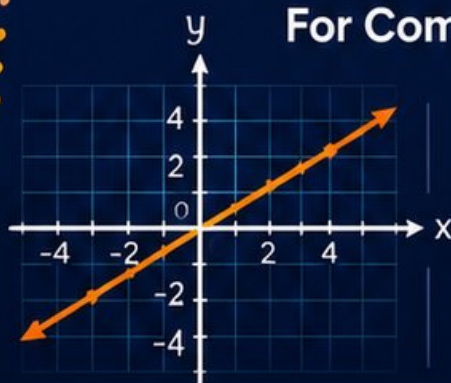
Oregon OSAS

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$
$$C = 2\pi r$$
$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}b^2 h$$



8

 PRINTED
TESTS

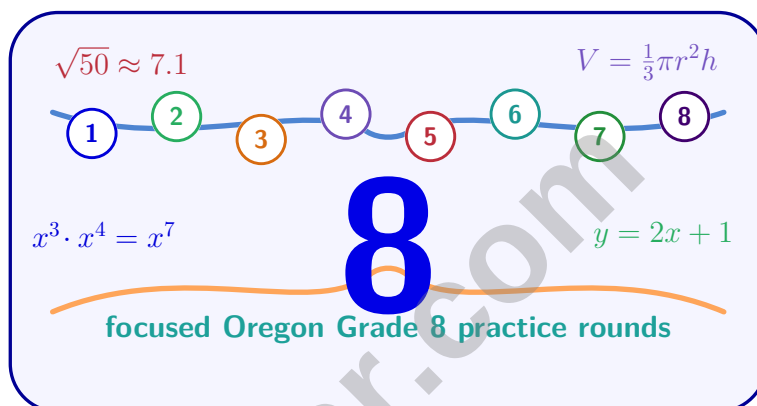
2

 ONLINE
TESTS

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

8 Oregon OSAS Grade 8 Math Practice Tests

Oregon Grade 8 Review for Functions, Geometry, and Data Reasoning



Eight 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!

Eight focused rounds for sharper OSAS math thinking

This book gives you eight 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

An eight-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?

Eight OSAS tests, 320 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real and irrational numbers, integer exponents, scientific notation, equations, and careful reading.
Tests 4–6	Slope, systems of equations, functions, inequalities, transformations, congruence, and similarity.
Tests 7–8	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
Answer Pages	Compact keys and explanations that show why each answer works.

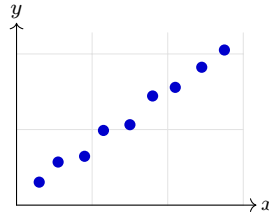
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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1)

A scatter plot displays the relationship between temperature (in degrees Celsius) and ice cream sales (in dollars) for 12 weeks. The points show a clear upward trend from left to right. Which statement correctly describes the correlation?

- ☐ A. Negative correlation ☐ C. No correlation
☐ B. Positive correlation ☐ D. Random scatter with no pattern

2) A retail store analyzes 500 transactions. 350 included a sale item and 150 did not. Of those with a sale item, 245 were from returning customers. What relative frequency (as a percent) of transactions with sale items are from returning customers?

- ☐ A. 49% ☐ C. 70%
☐ B. 56% ☐ D. 84%

3) A school is electing a president, vice-president, and treasurer from 9 candidates. How many ways can these positions be filled?

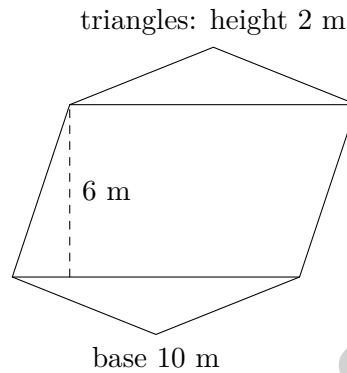
- ☐ A. $9 + 8 + 7 = 24$ ☐ C. $\binom{9}{3} = 84$
☐ B. $9 \times 8 \times 7 = 504$ ☐ D. $9^3 = 729$

4) A student confuses a pyramid with a cone. A pyramid has a square base with side 6 m and height 8 m. What is the correct volume?

- ☐ A. 48 m^3 ☐ C. 192 m^3
☐ B. 96 m^3 ☐ D. 288 m^3



- 5) A composite figure has a parallelogram base (base 10 m, height 6 m) with two congruent triangles placed on opposite sides (base 10 m, height 2 m each). What is the total area?



- ☐ A. 40 m^2
☐ C. 80 m^2
☐ B. 60 m^2
☐ D. 100 m^2
- 6) Two classes have the same mean test score of 75. Class A has $\text{MAD} = 3$, and Class B has $\text{MAD} = 8$. What does this tell us?

- ☐ A. Class B has higher individual scores
 ☐ C. Class A has more consistent scores
☐ B. Class A has more students
 ☐ D. Class B performed better overall

7)

	1	2	3
Red	R1	R2	R3
Blue	B1	B2	B3

The table above shows all possible outcomes when selecting a color and a number. How many total outcomes are there?

- ☐ A. 5
 ☐ C. 8
☐ B. 6
 ☐ D. 9



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8) Which is the best estimate of $3 - \sqrt{2}$?

☐ A. 0.6

☐ C. 2.0

☐ B. 4.4

☐ D. 1.6

9) Which of the following is rational?

☐ A. π

☐ C. 0.101001000... (non-repeating)

☐ B. $\sqrt{15}$

☐ D. $\sqrt{36}$

10) Which of the following shows a correct comparison?

☐ A. $0.\overline{5} < \frac{5}{10}$

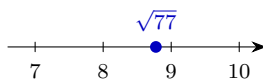
☐ C. $0.\overline{3} = \frac{1}{3}$

☐ B. $0.\overline{9} < 1$

☐ D. $0.\overline{4} < \frac{4}{9}$

11) An exterior angle of a triangle measures 148° . If one of the remote interior angles is 85° , find the other remote interior angle.

12) Where on a number line would $\sqrt{77}$ be located?



☐ A. At 9

☐ C. Between 8 and 9

☐ B. Between 9 and 10

☐ D. Between 7 and 8



1) A login code uses 3 distinct digits from the set $\{0, 1, 2, 3, 4, 5\}$. How many codes are possible?

☐ A. $6 + 5 + 4 = 15$

☐ C. $6^3 = 216$

☐ B. $6 \times 5 \times 4 = 120$

☐ D. $\binom{6}{3} = 20$

2) Factor $x^2 + 2x - 8$.

☐ A. $(x + 4)(x - 2)$

☐ C. $(x - 2)(x - 4)$

☐ B. $(x + 2)(x - 4)$

☐ D. $(x + 1)(x + 8)$



3)

A patient receives a medication injection. The dosage spikes immediately, then decreases as the body metabolizes it, and stabilizes at a baseline. Which interval shows the body absorbing the drug most rapidly?

- ☐ A. From 0 to 1 hour (absorption/rise) ☐ D. The rise and decay are equally rapid
☐ B. From 1 to 4 hours (decay)
☐ C. From 4 to 6 hours (plateau)



- 4) A rectangular garden is 8 meters long and 6 meters wide. What is the distance from one corner to the opposite corner (diagonal)?
- ☐ A. 10 m ☐ C. 14 m
☐ B. 7 m ☐ D. 48 m
- 5) A gardening store surveys 200 customers on plant purchase preferences. 140 bought flowering plants and 60 bought non-flowering. Among flowering-plant buyers, 98 also purchased fertilizer. What percentage of all customers bought both flowering plants and fertilizer?
- ☐ A. 49% ☐ C. 70%
☐ B. 56% ☐ D. 82%
- 6) A cylinder has radius 1.5 inches and height 8 inches. What is the surface area? (Use $\pi \approx 3.14$.)
- ☐ A. 28.3 in² ☐ C. 75.4 in²
☐ B. 47.1 in² ☐ D. 89.5 in²
- 7) A figure is rotated 45° clockwise about the origin. Which of the following best describes what happens to a side parallel to the x -axis?
- ☐ A. It remains parallel to the x -axis ☐ D. It becomes perpendicular to the
☐ B. It becomes parallel to the y -axis y -axis
☐ C. It tilts at a 45° angle below the
horizontal



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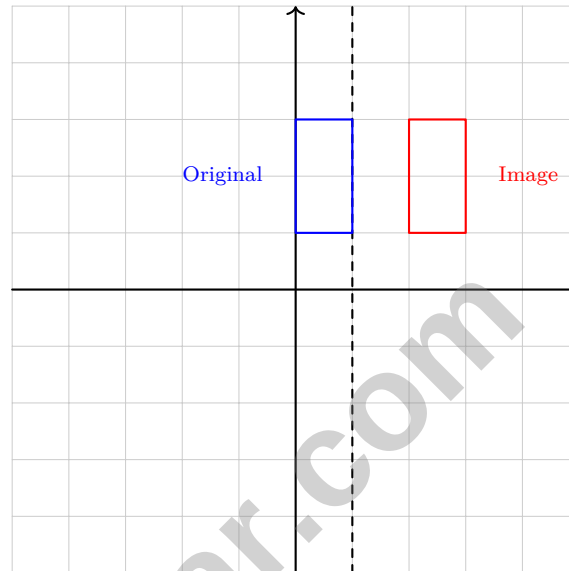
1) Which number is closest to $\sqrt{30}$?

☐ A. 5.4

☐ C. 5.6

☐ B. 5.7

☐ D. 5.5



2)

The figure shows a reflection across the dashed line $x = 1$. If a point on the original was at $(0, 2)$, where is it in the image?

☐ A. $(1, 2)$

☐ C. $(0, 2)$

☐ B. $(2, 2)$

☐ D. $(3, 2)$

3) Is the point $(0, 0)$ on the boundary line of $2x + 3y = 0$?

☐ A. Yes

☐ C. Only if $x = 0$

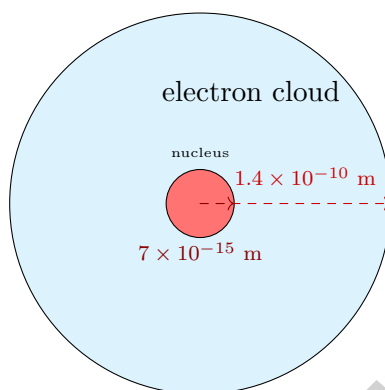
☐ B. No

☐ D. Only if $y = 0$



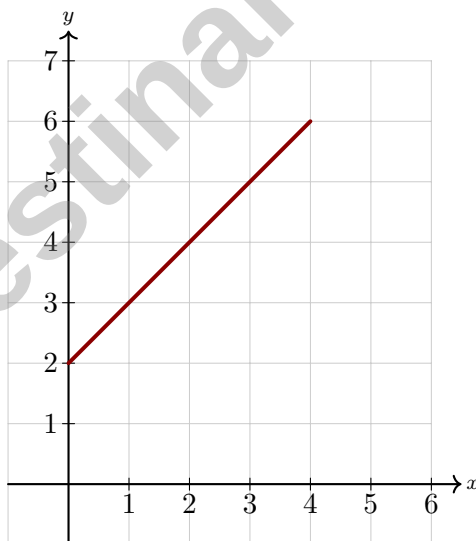
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- 4) A gold nucleus has a radius of about 7×10^{-15} meters. The electron cloud of a gold atom extends to about 1.4×10^{-10} meters. The atomic radius is how many times the nuclear radius?



- ☐ A. 0.5×10^5
☐ B. 5×10^4

- ☐ C. 2×10^4
☐ D. 2×10^5



5)

What is the y -intercept of the line shown?

- ☐ A. 1
☐ B. 4

- ☐ C. 3
☐ D. 2



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.DR.D.4) An upward trend means both variables increase together, indicating positive correlation. As temperature rises (moving right), ice cream sales rise (moving up).
- 2) **Choice C is correct.** (8.DR.C.3) Relative frequency of returning customers among sale-item transactions: $\frac{245}{350} = 0.70 = 70\%$.
- 3) **Choice B is correct.** (8.NS.A.2) President: 9 choices. Vice-president: 8 remaining. Treasurer: 7 remaining. Total: $9 \times 8 \times 7 = 504$.
- 4) **Choice B is correct.** (8.GM.C.9) Pyramid volume: $V = \frac{1}{3} \times 36 \times 8 = 96 \text{ m}^3$. (A cone with the same base and height would also be $\frac{1}{3}\pi r^2 h$, but this is a pyramid.)
- 5) **Choice C is correct.** (8.GM.A.3) Parallelogram = $10 \times 6 = 60 \text{ m}^2$. Each triangle = $\frac{1}{2} \times 10 \times 2 = 10 \text{ m}^2$. Two triangles = 20 m^2 . Total = $60 + 20 = 80 \text{ m}^2$.
- 6) **Choice C is correct.** (8.GM.B.8) A smaller MAD (Class A = 3) indicates less variability and more consistency. Class B's larger MAD (8) shows greater spread in scores.
- 7) **Choice B is correct.** (8.AEE.A.1) The table shows $2 \times 3 = 6$ outcomes total.
- 8) **Choice D is correct.** (8.NS.A.2) $\sqrt{2} \approx 1.41$, so $3 - 1.41 = 1.59 \approx 1.6$.
- 9) **Choice D is correct.** (8.NS.A.1) $\sqrt{36} = 6$, which is an integer and therefore rational. The others are irrational: π is transcendental, $\sqrt{15}$ is a square root of a non-perfect square, and $0.101001000\dots$ is non-terminating and non-repeating.
- 10) **Choice C is correct.** (8.NS.A.1) (A) $0.\bar{5} = \frac{5}{9} \approx 0.556$, so it is greater than $\frac{5}{10}$, not less. (B) $0.\bar{9} = 1$, not < 1 . (C) $0.\bar{3} = \frac{1}{3}$ is correct. (D) $0.\bar{4} = \frac{4}{9}$, not $< \frac{4}{9}$.
- 11) **The correct answer is 63.** (8.GM.A.5) Exterior angle = sum of remote interior angles: $148 = 85 + x \implies x = 63^\circ$.
- 12) **Choice C is correct.** (8.NS.A.2) $8^2 = 64$ and $9^2 = 81$. Since $64 < 77 < 81$, we have $8 < \sqrt{77} < 9$.
- 13) **Choice D is correct.** (8.AEE.A.1) At 5% over 2 years, higher principal earns more interest: $I = P \times 0.05 \times 2 = 0.1P$. Largest P is \$2,500.
- 14) **Choice D is correct.** (8.AEE.A.1) Any nonzero number raised to the power 0 equals 1: $8^0 = 1$.
- 15) **Choice C is correct.** (8.AEE.A.1) Divide: $\frac{8 \times 10^7}{2 \times 10^5} = \frac{8}{2} \times 10^{7-5} = 4 \times 10^2 = 400$.
- 16) **Choice D is correct.** (8.AEE.B.5) Slope = $\frac{\Delta y}{\Delta x} = \frac{15-0}{5-0} = 3$. For a proportional line through the origin, the slope equals the unit rate.
- 17) **Choice A is correct.** (8.AEE.B.6) Using (1, 4) and (5, 2): slope = $\frac{2-4}{5-1} = -\frac{1}{2}$. Substituting: $4 = -\frac{1}{2}(1) + b$ gives $b = \frac{9}{2}$.
- 18) **Choice A is correct.** (8.AEE.C) Subtract 8 from both sides: $2x = 12$. Divide by 2: $x = 6$. Check: $2(6) + 8 = 12 + 8 = 20$ ✓.
- 19) **Choice A is correct.** (8.AFN.A.3) The differences are $13 - 5 = 8$, $21 - 13 = 8$, $29 - 21 = 8$. A constant difference of 8 indicates a linear function.
- 20) **Choice B is correct.** (8.GM.B.8) Since both points have $y = 4$, the horizontal distance is $|5 - (-3)| = 8$.
- 21) **Choice C is correct.** (8.AEE.A) A cube root asks what number cubed gives 100. Since $10^3 = 1000$, 10 is not the cube root of 100.
- 22) **The correct answer is A,B.** (8.AFN.B.5) From (0, 1) to (2, 5), the function increases, so A is true. From (2, 5) to (4, 5), the function is constant, so B is true. It is not decreasing on $[2, 4]$, the maximum is 5, and the y -intercept is 1.
- 23) **Choice D is correct.** (8.AEE.A.4) Same exponents: $(5.2 - 1.5) \times 10^6 = 3.7 \times 10^6$.
- 24) **Choice C is correct.** (8.AEE.C.8) Subtract the second from the first: $(2x + 5y) - (2x + y) = 19 - 7$, so $4y = 12$, giving $y = 3$. Substitute: $2x + 1 = 7$, so $x = 3$. Solution: (3, 3).
- 25) **Choice B is correct.** (8.AFN.A.1) Table A: outputs are 3, 5, 7, 9 and inputs are 1, 2, 3, 4 — all outputs are greater. Table B: when $x = 0$, $y = 0$ (equal, not greater).
- 26) **The correct answer is 3.** (8.GM.B.6, 8.GM.B.7) From $(\sqrt{6})^2 + (\sqrt{3})^2 = c^2$, we get $6 + 3 = 9$, so $c = \sqrt{9} = 3$.



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You Are Building Test Stamina

Hi, Stamina Builder!

◇ This wide-ranging book gave you eight serious Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Completing practice tests builds more than math knowledge. It builds the focus needed to think clearly for a long stretch. ◇

★ **Remember this:** That stamina matters. On real test day, calm pacing can be just as important as remembering a formula. ★

Stamina Skills

- **Breathe:** Reset before a difficult page.
- **Pace:** Do not spend too long in one place.
- **Return:** Come back to skipped questions with fresh eyes.
- **Finish Strong:** Use the last minutes to check.

Grade 8 test-day tip: Practice a simple reset: pause, breathe, reread, then choose your next step.

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

Jay Daie

Your Test-Stamina Coach

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!

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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!



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