

Oregon

OSAS

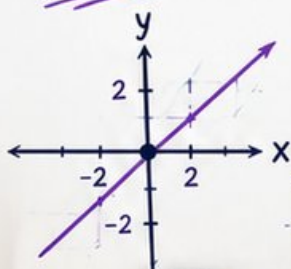
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

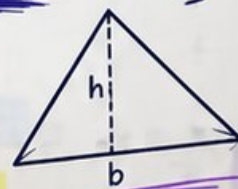
$$y = mx + b$$



**BUILD
CONFIDENCE.
SHARPEN SKILLS.
ACE YOUR
EXAM!**

Practice
Today
Succeed
Tomorrow!

$$A = \frac{1}{2}bh$$



7 PRINTED
TESTS



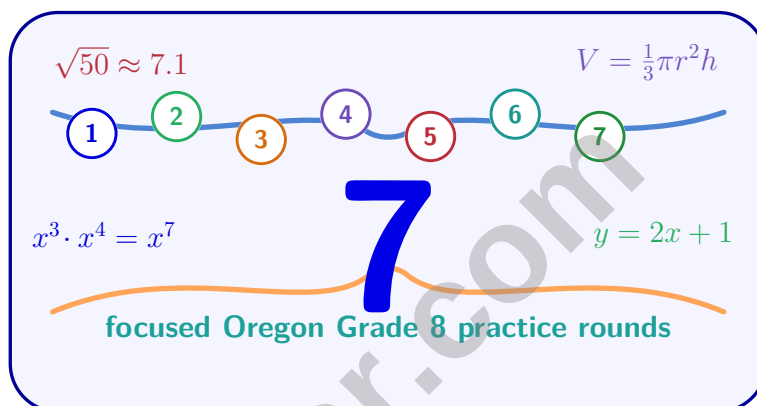
2 ONLINE
TESTS



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

7 Oregon OSAS Grade 8 Math Practice Tests

Seven OSAS Practice Rounds for Functions, Shapes, and Statistics



Seven 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!

Seven focused rounds for sharper OSAS math thinking

This book gives you seven 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 seven-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?

Seven OSAS tests, 280 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.
Test 7	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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For more practice
& answers

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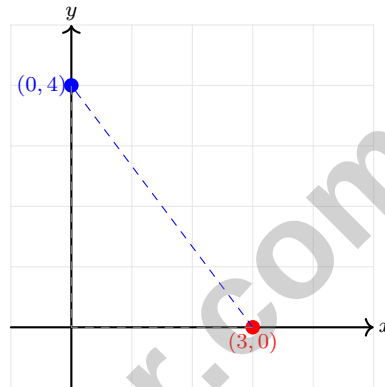
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- 1) A concert sells premium tickets at \$60 and economy tickets at \$20. A total of 300 tickets sold for \$12,000. How many premium tickets were sold?

☐ A. 75
☐ B. 100

☐ C. 125
☐ D. 150

- 2) A student is finding the distance between points $(3, 0)$ and $(0, 4)$ and writes: $d = 3 + 4 = 7$. What is the error?



- ☐ A. They should square the differences before adding them.
☐ B. The answer is actually correct.
- ☐ C. They forgot to take the square root.
☐ D. They added instead of subtracting the coordinates.

- 3) The energy released by a small explosion is about 2×10^{12} joules. A TNT equivalent is often measured where 1 kiloton TNT $\approx 4 \times 10^{12}$ joules. How many kilotons is the explosion?

☐ A. 2 kilotons
☐ B. 5×10^1 kilotons

☐ C. 0.5 kilotons
☐ D. 8×10^{23} kilotons

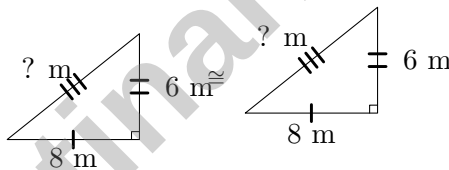


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- 4) A cube-shaped storage container has a volume of 512 cubic feet. What is the side length of the cube?

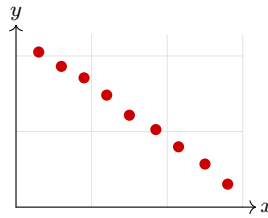
- 5) Solve for x : $2(3x - 1) = 4x + 6$. Show all steps and verify your solution.

- 6) Two congruent right triangles are shown. Triangle 1 has legs of 6 m and 8 m. What is the hypotenuse of Triangle 2?



- ☐ A. 5 m ☐ C. 10 m
☐ B. 7 m ☐ D. 14 m
- 7) A quadrilateral has interior angles 72° , 88° , 95° , and x . What is x ?
- ☐ A. 100° ☐ C. 110°
☐ B. 105° ☐ D. 115°





8)

A scatter plot of monthly temperature (x) versus monthly heating costs (y) shows a strong negative relationship. Which statement correctly interprets this?

- ☐ A. Heating costs and temperature are unrelated ☐ C. Higher temperatures cause lower heating bills
☐ B. Lower heating bills cause warmer weather ☐ D. As temperature increases, heating costs tend to decrease

9) If Figure M is similar to Figure N with scale factor 2, and Figure N is similar to Figure O with scale factor 2, what is the scale factor from Figure M to Figure O ?



- ☐ A. 2 ☐ C. $\frac{1}{2}$
☐ B. 4 ☐ D. 1

10) Factor $x^2 - 8x + 15$.

- ☐ A. $(x - 3)(x - 5)$ ☐ C. $(x - 15)(x + 1)$
☐ B. $(x + 3)(x + 5)$ ☐ D. $(x - 2)(x - 8)$



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1) A line passes through $(1, 3)$ and $(3, 7)$. Is this a linear relationship?

- ☐ A. No, the slope is not 1 ☐ C. Yes, a line is always linear
☐ B. No, because you need more than two points ☐ D. Yes, only if the slope is positive

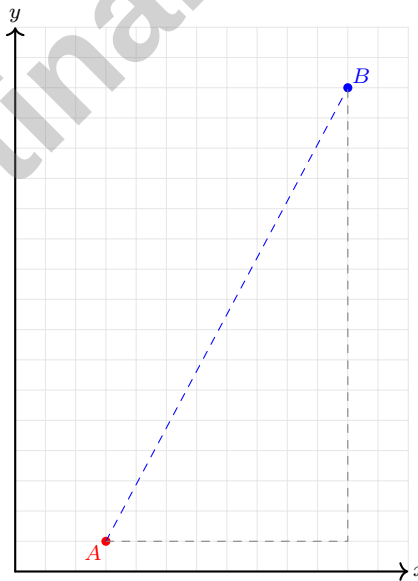
2) The line $y = mx + b$ has slope $\frac{2}{3}$ and passes through $(3, 6)$. What is b ?

- ☐ A. 4 ☐ C. 6
☐ B. 2 ☐ D. $\frac{2}{3}$

3) Solve for y : $-4y + 7 = 15$

- ☐ A. $y = -8$ ☐ C. $y = 2$
☐ B. $y = 8$ ☐ D. $y = -2$

4) An airplane flies from airport $A = (3, 1)$ to airport $B = (11, 16)$. Both coordinates are in hundreds of kilometers. What is the flight distance in hundreds of kilometers?



- ☐ A. 17 (hundred km) ☐ C. $\sqrt{300}$ (hundred km)
☐ B. 24 (hundred km) ☐ D. 25 (hundred km)



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5) Simplify $\sqrt{16} \times \sqrt{25}$.

☐ A. $\sqrt{41}$

☐ B. 40

☐ C. $\sqrt{200}$

☐ D. 20

6) $(3 \times 10^{-4}) \times (6 \times 10^{-5}) \times (10^8) = ?$

☐ A. 1.8×10^{-2}

☐ B. 18×10^{-2}

☐ C. 18×10^{-9}

☐ D. 1.8×10^0

7) A figure is reflected across a line and then rotated. Which statement is always true?

☐ A. The figure changes size

☐ B. The angles are no longer equal

☐ C. The resulting figure is congruent to the original

☐ D. The perimeter increases

8) If each interior angle of a regular polygon is 144° , how many sides does it have?

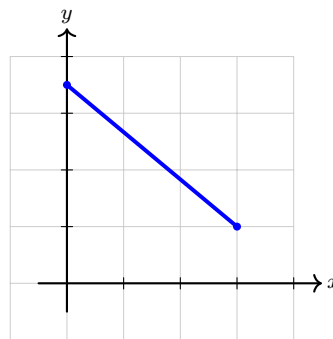
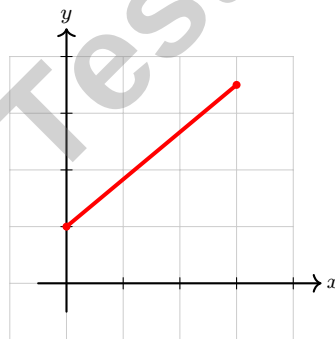
☐ A. 8

☐ B. 9

☐ C. 10

☐ D. 12

9) Which graph represents a positive slope?



☐ A. Red line (left)

☐ B. Blue line (right)

☐ C. Both have positive slope

☐ D. Neither has positive slope



1) A student loan of \$10,000 at 5% compound interest grows for 4 years. Approximately how much will be owed?

☐ A. \$10,500

☐ C. \$12,155

☐ B. \$11,500

☐ D. \$13,000

2) What does $3!$ equal?

☐ A. $3 + 2 = 5$

☐ C. $3^3 = 27$

☐ B. $3 \times 2 \times 1 = 6$

☐ D. $\frac{3}{2} = 1.5$

3) A data set has $MAD = 0$. What must be true about the data?

☐ A. All values are zero

☐ C. There is exactly one value

☐ B. The mean is zero

☐ D. All values are identical

4) A triangular pyramid has a right-triangular base with legs 9 in and 12 in, and a pyramid height of 20 in. Calculate the volume in cubic inches.

5)

	H	T
1	H1	T1
2	H2	T2

A coin is flipped and a spinner labeled 1, 2 is spun. What is the probability of getting an outcome where the coin is heads?

☐ A. $\frac{1}{4}$

☐ C. $\frac{1}{3}$

☐ B. $\frac{1}{2}$

☐ D. $\frac{3}{4}$



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& answers

6) Which is the best estimate of $\sqrt{7}$?

☐ A. 2.1

☐ C. 3.5

☐ B. 7.0

☐ D. 2.6

7) Which statement best explains why $\sqrt{2}$ cannot equal a fraction?

☐ A. Because it is too large to fit in a fraction

☐ C. Because there is no pair of integers whose ratio equals exactly $\sqrt{2}$

☐ B. Because 2 is not a perfect square

☐ D. Because the numerator cannot be 2

8) Convert $0.\overline{45}$ to a fraction in simplest form.

☐ A. $\frac{9}{20}$

☐ C. $\frac{45}{90} = \frac{1}{2}$

☐ B. $\frac{45}{100}$

☐ D. $\frac{45}{99} = \frac{5}{11}$

9) A right triangle has legs of length 3 and 5 units. Which integer range contains the hypotenuse length?

☐ A. Between 8 and 9

☐ C. Between 7 and 8

☐ B. Between 6 and 7

☐ D. Between 5 and 6

10) Which expression cannot be simplified using exponent laws?

☐ A. $a^3 \cdot a^2$

☐ C. $a^3 + a^2$

☐ B. $\frac{a^3}{b^2}$

☐ D. $(c^2)^3$

11) Which is the smallest number?

☐ A. 1.5×10^{-2}

☐ C. 1.5×10^{-4}

☐ B. 1.5×10^0

☐ D. 1.5×10^2



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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& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.AEE.C.8) Let p = premium tickets and e = economy tickets. Then $p + e = 300$ and $60p + 20e = 12000$. From the first: $e = 300 - p$. Substituting: $60p + 20(300 - p) = 12000$, so $60p + 6000 - 20p = 12000$, giving $40p = 6000$ and $p = 150$.
- 2) **Choice A is correct.** (8.GM.B.8) Correct method: $d = \sqrt{(3-0)^2 + (0-4)^2} = \sqrt{9+16} = \sqrt{25} = 5$ units. The student used addition instead of the Pythagorean Theorem.
- 3) **Choice C is correct.** (8.AEE.A.4) Divide: $\frac{2 \times 10^{12}}{4 \times 10^{12}} = \frac{2}{4} \times 10^0 = 0.5 \times 10^0 = 0.5$ kilotons.
- 4) **The correct answer is 8.** (8.AEE.A) $e^3 = 512$, so $e = \sqrt[3]{512} = 8$ feet.
- 5) **The correct answer is $x = 4$.** (8.AEE.C) Distribute the 2: $6x - 2 = 4x + 6$. Subtract $4x$ from both sides: $2x - 2 = 6$. Add 2 to both sides: $2x = 8$. Divide by 2: $x = 4$. Verify: $2(3(4) - 1) = 2(11) = 22$ and $4(4) + 6 = 22$ ✓.
- 6) **Choice C is correct.** (8.GM.A.2) Using the Pythagorean Theorem on Triangle 1: $c^2 = 6^2 + 8^2 = 36 + 64 = 100$, so $c = 10$ m. Triangle 2 is congruent, so its hypotenuse is also 10 m.
- 7) **Choice B is correct.** (8.GM.A.5) Sum of interior angles in a quadrilateral is 360° . So $x = 360 - 72 - 88 - 95 = 105^\circ$.
- 8) **Choice D is correct.** (8.DR.C.3) A negative trend shows that warmer months have lower heating costs, a natural relationship that does not imply causation.
- 9) **Choice B is correct.** (8.GM.A.4) Composite scale factor: $2 \times 2 = 4$. Scaling is transitive.
- 10) **Choice A is correct.** (8.AEE.B.6) Find two numbers that multiply to 15 and add to -8 : -3 and -5 . So $x^2 - 8x + 15 = (x-3)(x-5)$.
- 11) **Choice B is correct.** (8.AFN.A.2) Slope of p : -1 . Slope of q : -1.5 . Since $-1.5 < -1$, function q is more negative.
- 12) **Choice D is correct.** (8.GM.C.9) Use $V = \frac{1}{3}\pi r^2 h$: $392.5 = \frac{1}{3} \times 3.14 \times r^2 \times 15$. Since $\frac{1}{3} \times 15 = 5$, $392.5 = 15.7r^2$, so $r^2 = 25$ and $r = 5$ cm.
- 13) **Choice D is correct.** (8.AEE.C.8) Subtract the second equation from the first: $(3x + 2y) - (3x - y) = 12 - 12$, so $3y = 0$ and $y = 0$. Substitute into $3x - y = 12$: $3x = 12$, so $x = 4$. Solution: $(4, 0)$.
- 14) **Choice C is correct.** (8.AFN.B.5) By the vertical line test, a function can have at most one y -intercept (at $x = 0$). But it can have many x -intercepts (zeros). Options A violates the vertical line test, B is sometimes false, D is false for functions that don't cross an axis.
- 15) **Choice B is correct.** (8.GM.A.3) The point $(1, 1)$ maps to $(-1, 1)$, and $(2, 2)$ maps to $(-2, 2)$. This is reflection across the y -axis: $(x, y) \rightarrow (-x, y)$.
- 16) **The correct answer is -4 .** (8.AEE.C.7) Solving gives $x > -4$, so the boundary value is -4 .
- 17) **Choice B is correct.** (8.GM.A.5) Alternate interior angles are on opposite sides of the transversal and between the parallel lines.
- 18) **Choice A is correct.** (8.GM.B.6, 8.GM.B.7) From $10^2 + b^2 = 26^2$, we get $100 + b^2 = 676$, so $b^2 = 576$ and $b = 24$ (scaled 5-12-13 triple).
- 19) **The correct answer is B,E.** (8.AEE.B.6) The equation has slope $-\frac{2}{3}$ and y -intercept 5, so B and E are correct. The point $(5, 0)$ is not on the line because $-\frac{2}{3}(5) + 5 = \frac{5}{3}$, not 0. A perpendicular line would have slope $\frac{3}{2}$, not $-\frac{3}{2}$.
- 20) **Choice C is correct.** (8.GM.B.7) Let the angle be x . Its supplement is $180 - x$. So $x = (180 - x) + 8 \Rightarrow x = 188 - x \Rightarrow 2x = 188 \Rightarrow x = 94^\circ$.
- 21) **Choice C is correct.** (8.GM.C.9) If height triples, volume triples (linear relationship with h in $V = \frac{1}{3}Bh$). New volume: $3 \times 240 = 720$ ft³.
- 22) **Choice B is correct.** (8.GM.A.3) The square area is $20 \times 20 = 400$ m². Four corner triangles are removed, and each has area $\frac{1}{2} \times 3 \times 3 = 4.5$ m². The octagon area is $400 - 4(4.5) = 382$ m².
- 23) **Choice C is correct.** (8.DR.D.4) Clear linearity with points close to the line of best fit indicates strong correlation. The downward trend makes it negative.
- 24) **Choice A is correct.** (8.DR.C.3) Joint frequency is the intersection count divided by the grand total: $\frac{63}{150} = \frac{21}{50} = 0.42$.
- 25) **Choice B is correct.** (8.GM.B.8) Expanded data: 4, 4, 8, 8, 8, 12, 12, 12, 12, 12. The mean is 9.2. Deviations: $|4 - 9.2| = 5.2$ (twice), $|8 - 9.2| = 1.2$ (three times), $|12 - 9.2| = 2.8$ (five times). Sum = $10.4 + 3.6 + 14 = 28$. MAD = $28/10 = 2.8$.



Hi, Confident Learner!

◇ This broad and demanding book gave you seven strong Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 8 math can feel big because it connects real numbers and exponents with linear equations, systems, functions, transformations, geometry, 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 8 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!

Give your child the confidence and skills they need with **7 full-length Grade 8 Math** practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!

GRADE 8

Practice
Today
Succeed
Tomorrow!

Algebra

Geometry

Statistics

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



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