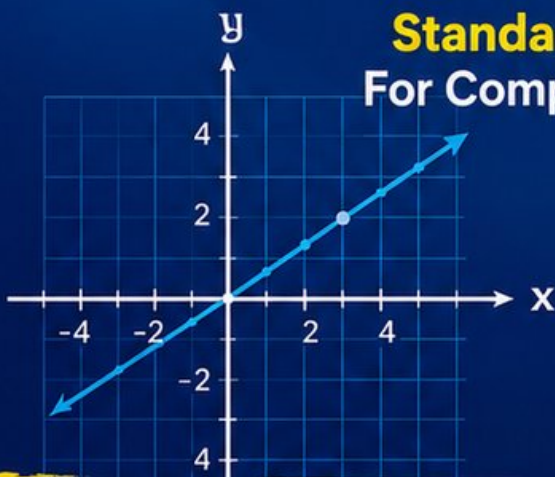
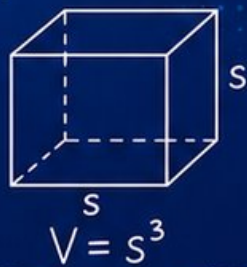


9 Oklahoma OSTP Grade 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$2x + 3y = 12$$
$$y = mx + b$$



**9 PRINTED
TESTS**

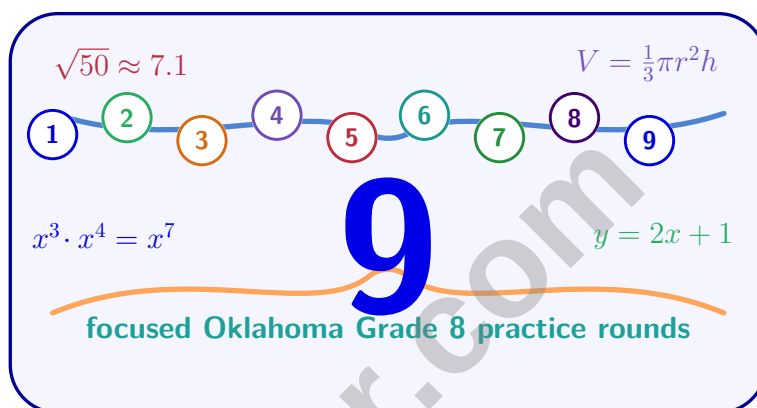


**2 ONLINE
TESTS**

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

9 Oklahoma OSTP Grade 8 Math Practice Tests

Oklahoma Math Readiness for Exponents, Systems, Functions, Geometry, and Statistics



Nine complete 40-question Grade 8 OSTP 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, Oklahoma Grade 8 Problem Solver!

Nine focused rounds for sharper OSTP math thinking

This book gives you nine full Grade 8 OSTP 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 Oklahoma 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 nine-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.

Oklahoma 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 OSTP tests, 360 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 7–9	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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Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	30
★ Practice Test 3	_____	44
★ Practice Test 4	_____	61
★ Practice Test 5	_____	78
★ Practice Test 6	_____	93
★ Practice Test 7	_____	110
★ Practice Test 8	_____	127
★ Practice Test 9	_____	143
Practice Test Answer Keys	_____	160
Practice Test Answers and Explanations	_____	166

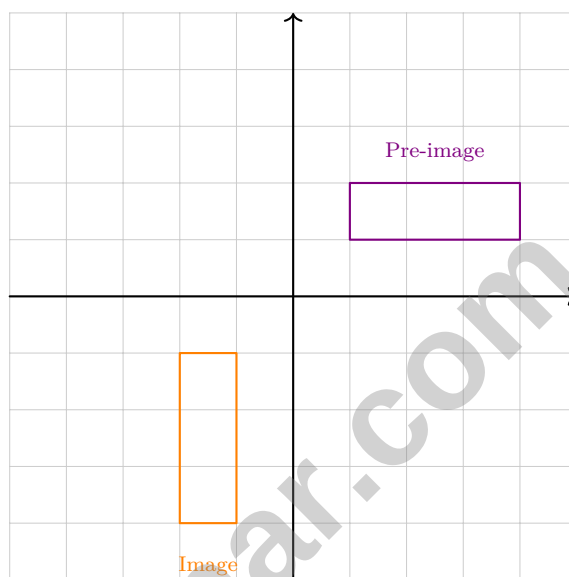
1) Convert $0.\overline{7}$ to a fraction. Which step is incorrect?

☐ A. Let $x = 0.\overline{7}$.

☐ B. $10x = 7.\overline{7}$.

☐ C. $10x - x = 7.\overline{7} - 0.\overline{7} = 7$ is wrong; should be 0.7.

☐ D. $9x = 7$, so $x = \frac{7}{9}$.



2)

Which sequence of transformations was applied?

☐ A. Translate 5 units down, then rotate 90°

☐ B. Reflect across the x -axis, then rotate

☐ C. Rotate 90° counterclockwise, then translate 5 units down

☐ D. Dilate by scale factor 2, then translate

3) Solve for x : $5x - 3 = 2x + 9$

☐ A. $x = 2$

☐ B. $x = 12$

☐ C. $x = 6$

☐ D. $x = 4$



4) Write an inequality for: "A number increased by 6 is at most 15."

☐ A. $x - 6 \leq 15$

☐ C. $x + 6 < 15$

☐ B. $6x \leq 15$

☐ D. $x + 6 \leq 15$

5) A line passes through $(1, 5)$ with slope $\frac{1}{2}$. What is the y -intercept?

☐ A. 4

☐ C. 5

☐ B. $\frac{3}{2}$

☐ D. $\frac{9}{2}$

6) Determine the number of solutions for this system:
$$\begin{cases} 3x - 6y = 9 \\ -x + 2y = -3 \end{cases}$$

☐ A. No solution

☐ C. Infinitely many solutions

☐ B. Exactly one solution

☐ D. Two solutions

7) Factor $x^2 - 11x + 24$.

☐ A. $(x - 3)(x - 8)$

☐ C. $(x - 2)(x - 12)$

☐ B. $(x - 4)(x - 6)$

☐ D. $(x + 3)(x + 8)$

8) To determine the solution region of an inequality, you can use a test point. Which is the most efficient test point to select?

☐ A. A point on the boundary line

☐ C. Any point with negative coordinates

☐ B. The origin $(0, 0)$, provided it is not on the boundary

☐ D. A point in Quadrant III



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9) Which set of ordered pairs represents a function?

☐ A. $\{(0, 1), (0, 2), (1, 3)\}$

☐ C. $\{(1, 1), (1, 2), (2, 2)\}$

☐ B. $\{(2, 4), (3, 5), (4, 6)\}$

☐ D. $\{(5, 3), (5, 4), (6, 5)\}$

10) Water level in two tanks: Tank A: $L_A(t) = 50 - 3t$ liters. Tank B in table: $(0, 40)$, $(5, 20)$, $(10, 0)$. Which empties faster?

t	0	5	10
$L_B(t)$	40	20	0

☐ A. Tank A empties faster

☐ C. Same rate

☐ B. Tank B empties faster

☐ D. Cannot determine

11) Which table represents a NONLINEAR function?

x	0	1	2	3
y	1	2	4	8

☐ A. No, y increases

☐ C. Yes, the y -values are doubling

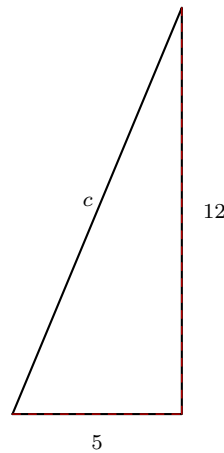
☐ B. Yes, the first differences are not constant

☐ D. No, the x -values are equally spaced

12) In the list 5.2×10^{-2} , 5.2×10^0 , 5.2×10^2 , 5.2×10^{-1} , what is the exponent of the smallest number?



- 1) If a right triangle has legs of length 5 and 12, which is the length of the hypotenuse?



- ☐ A. $\sqrt{170}$ ☐ C. 7
☐ B. 17 ☐ D. 13
- 2) An angle's measure is 8° more than its supplement. Find the angle's measure.
- ☐ A. 86° ☐ C. 94°
☐ B. 88° ☐ D. 96°
- 3) A pyramid has a rectangular base with dimensions 10 ft by 7 ft and a height of 12 ft. What is the volume?
- ☐ A. 210 ft^3 ☐ C. 420 ft^3
☐ B. 280 ft^3 ☐ D. 840 ft^3
- 4) A rental agency charges $C = 0.35m + 50$, where C is cost in dollars and m is miles. Which statement BEST explains the practical meaning of 0.35?
- ☐ A. The company charges \$0.35 per mile driven ☐ C. For every 0.35 miles, the cost increases by \$1
☐ B. The company charges a \$50 deposit that covers 0.35 miles ☐ D. The daily rental rate is \$0.35



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- 5) If $g(x) = x^2 + 2$ and $g(x) = 11$, find the possible values of x .

- 6) A health clinic surveys 280 patients about diet type:

	Vegetarian	Omnivore	Total
Age 18–40	84	112	196
Age 41+	28	56	84
Total	112	168	280

What is the joint relative frequency of age 41+ omnivores, as a percentage?

- ☐ A. 20% ☐ C. 33%
☐ B. 25% ☐ D. 40%
- 7) The probability that a student passes a test is $\frac{4}{5}$. What is the probability that the student does NOT pass?

- ☐ A. $\frac{1}{5}$ ☐ C. $\frac{5}{4}$
☐ B. $\frac{4}{5}$ ☐ D. $\frac{0}{5}$

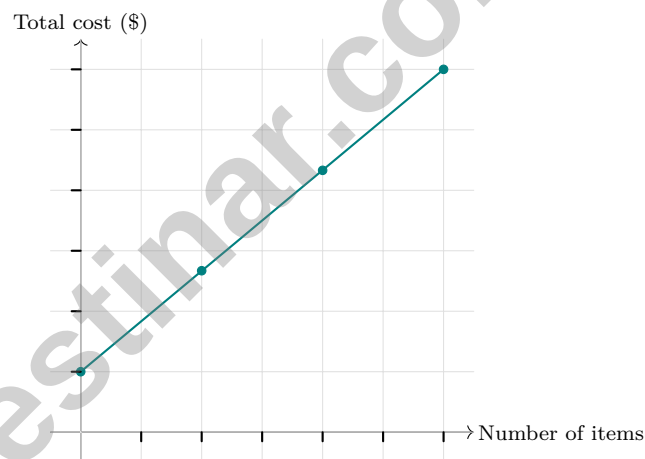


- 1) Two similar trapezoids have parallel sides. In trapezoid T_1 , the bases are 10 cm and 6 cm. In trapezoid T_2 , the longer base is 15 cm. What is the length of the shorter base of T_2 ?

☐ A. 8 cm ☐ C. 10 cm
☐ B. 9 cm ☐ D. 12 cm

- 2) A rectangular prism has a square base (length = width) and height equal to the side length of the base. If the surface area is 150 cm^2 , what is the side length of the square base?

☐ A. 3 cm ☐ C. 6 cm
☐ B. 5 cm ☐ D. 7 cm



3)

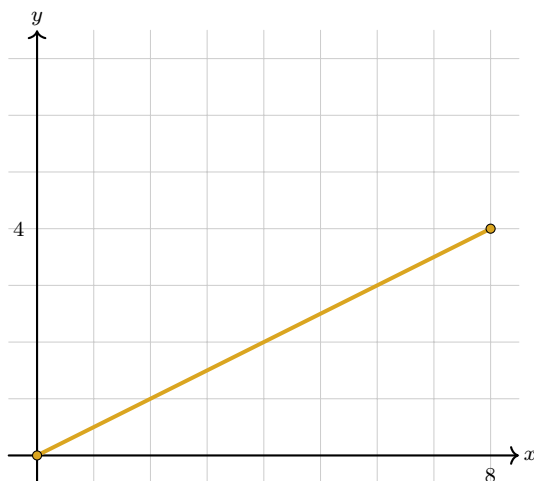
Based on the scatter plot, write the equation of the best-fit line in the form $y = mx + b$. What is the slope?

☐ A. $\frac{1}{6}$ ☐ C. 1
☐ B. $\frac{5}{6}$ ☐ D. 6



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4)



The constant of proportionality is:

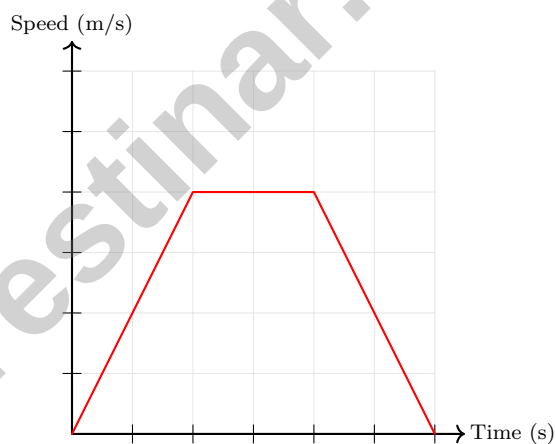
☐ A. 2

☐ C. 0.5

☐ B. 1

☐ D. 4

5)



A car accelerates, maintains constant speed, then brakes. Which intervals match?

☐ A. Accelerate $[0,2]$, constant $[2,4]$, brake $[4,6]$
☐ C. Brake $[0,2]$, constant $[2,4]$, accelerate $[4,6]$
☐ B. Constant $[0,2]$, accelerate $[2,4]$, brake $[4,6]$
☐ D. Accelerate $[0,4]$, brake $[4,6]$, constant after


Oklahoma OSTP 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 Oklahoma OSTP practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (PA.N.1.4) When we subtract $10x - x = 7.\overline{7} - 0.\overline{7}$, we get 7 (not 0.7). The repeating parts cancel perfectly, leaving the integer 7.
- 2) **Choice C is correct.** (PA.GM.1.1) A 90° counterclockwise rotation sends the rectangle to a vertical position. Translating that rotated image 5 units down matches the orange image.
- 3) **Choice D is correct.** (PA.A.3.1) Subtract $2x$ and add 3: $3x = 12$. Divide by 3: $x = 4$. (Distractor A: result of dividing 12 by 3 incorrectly; C: forgetting to distribute constant; D: result of incorrect arithmetic.)
- 4) **Choice D is correct.** (PA.A.3.2) "A number increased by 6" is $x + 6$; "at most" means $\leq$. So $x + 6 \leq 15$.
- 5) **Choice D is correct.** (PA.A.2.4) Using $y = mx + b$: $5 = \frac{1}{2}(1) + b$, so $5 = \frac{1}{2} + b$, thus $b = \frac{9}{2}$.
- 6) **Choice C is correct.** (PA.A.4.1) Simplify the first equation by dividing by 3: $x - 2y = 3$. Multiply the second by -1 : $x - 2y = 3$. They are the same equation, so infinitely many solutions.
- 7) **Choice B is correct.** (PA.A.4.2) Find two numbers that multiply to 24 and add to -11 : -4 and -6 . Verify: $(-4)(-6) = 24$ and $-4 - 6 = -11$.
- 8) **Choice B is correct.** (PA.A.4.2) The origin is easy to test computationally and gives quick results. If the boundary line passes through $(0, 0)$, choose another convenient point like $(1, 0)$ or $(0, 1)$.
- 9) **Choice B is correct.** (PA.A.1.1) Each input $(2, 3, 4)$ maps to exactly one output $(4, 5, 6)$. The other sets have repeated inputs.
- 10) **Choice B is correct.** (PA.A.1.3) Rate of A: -3 liters/min. Rate of B: $(20 - 40)/5 = -4$ liters/min. Since $|-4| > |-3|$, Tank B empties faster.
- 11) **Choice B is correct.** (PA.A.2.1) The differences between consecutive y -values are $2 - 1 = 1$, $4 - 2 = 2$, $8 - 4 = 4$. These are not constant, which indicates the function is nonlinear.
- 12) **The correct answer is -2 .** (PA.N.1.2) With the same coefficient, the smallest power has the smallest exponent: -2 .
- 13) **The correct answer is $\frac{5}{11}$.** (PA.N.1.4) Let $x = 0.454545\dots$. Then $100x = 45.454545\dots$, so $99x = 45$ and $x = \frac{45}{99} = \frac{5}{11}$.
- 14) **Choice A is correct.** (PA.A.2.5) Using $y = mx + b$ with $m = -2$ and $b = 5$: equation is $y = -2x + 5$.
- 15) **Choice B is correct.** (PA.A.2.1) From 1 to 3: change = $(0 - 2)/(3 - 1) = -1$ per unit. From 3 to 5: change = $(3 - 0)/(5 - 3) = 1.5$ per unit (positive). The interval $[1, 3]$ has slope -1 , the steepest negative.
- 16) **Choice C is correct.** (PA.GM.1.1) Translation is a rigid motion that preserves all angles. Since polygon A'B'C'D' is congruent to ABCD, angle A' = angle A = 85° .
- 17) **Choice A is correct.** (PA.GM.1.1) From $(\sqrt{5})^2 + (\sqrt{20})^2 = c^2$, we get $5 + 20 = 25$, so $c = \sqrt{25} = 5$.
- 18) **Choice C is correct.** (PA.GM.2.3) Each interior angle of a regular octagon: $\frac{(8-2) \times 180}{8} = \frac{1080}{8} = 135^\circ$.
- 19) **The correct answer is A, B.** (PA.GM.2.1) Cylinder $V = 3.14 \times 9 \times 7 = 197.82 \text{ cm}^3$ (A correct); Cone $V = \frac{1}{3} \times 3.14 \times 9 \times 7 = 65.94 \text{ cm}^3$ (B correct). C is wrong (incorrect cylinder volume), D is wrong (that's the cylinder volume), E is wrong (cone is $\frac{1}{3}$ cylinder).
- 20) **Choice A is correct.** (PA.D.1.1) Outliers in health data can indicate genuine health risks or data recording errors. Ignoring (B) or removing (C) the outlier without investigation risks missing important health concerns. The outlier should prompt further examination.
- 21) **Choice C is correct.** (PA.A.1.2) Total paid: $600 \times 36 = \$21,600$. Finance charge: $21600 - 12000 = \$9,600$.
- 22) **Choice C is correct.** (PA.N.1.1) $(3x^2)^2 = 9x^4$. Then $9x^4 \cdot x^{-3} = 9x^{4-3} = 9x^1 = 9x$.
- 23) **The correct answer is 8.2.** (PA.N.1.4) $8^2 = 64$ 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.
- 24) **Choice C is correct.** (PA.N.1.1) A cube root asks what number cubed gives 100. Since $10^3 = 1000$, 10 is not the cube root of 100.
- 25) **Choice C is correct.** (PA.N.1.3) Divide: $\frac{5 \times 10^6}{2.5 \times 10^3} = \frac{5}{2.5} \times 10^{6-3} = 2 \times 10^3$.
- 26) **Choice C is correct.** (PA.A.2.2) Slope $k = \frac{8}{3}$. Equation: $y = \frac{8}{3}x$. At $x = 6$: $y = \frac{8}{3}(6) = 16$.
- 27) **Choice A is correct.** (PA.GM.1.1) Translation vector: $(-1, 2) - (2, 3) = (-3, -1)$. So $F' = (5, 7) + (-3, -1) = (2, 6)$.



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 9 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

CONFIDENCE TODAY, SUCCESS TOMORROW!

GRADE

8

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- | | |
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| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
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