

Oklahoma

OSTP

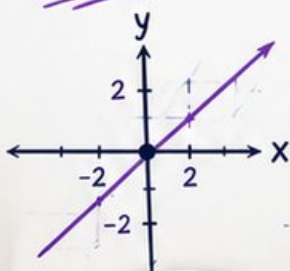
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

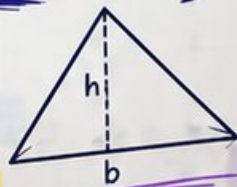
$$y = mx + b$$



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

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



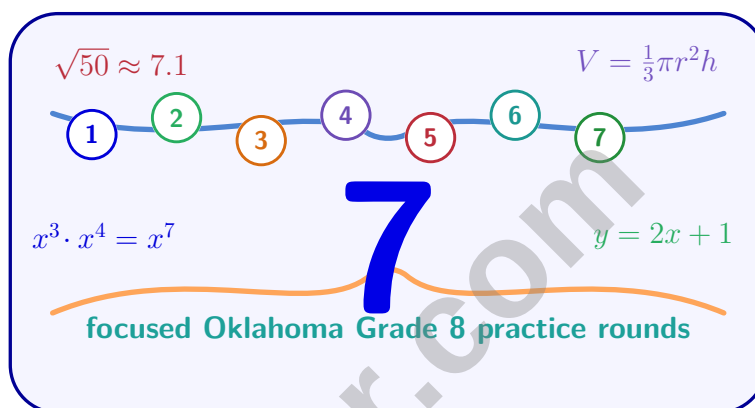
2 ONLINE
TESTS



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

7 Oklahoma OSTP Grade 8 Math Practice Tests

OSTP Prep with Seven Complete Grade 8 Standards-Based Tests



Seven 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!

Seven focused rounds for sharper OSTP math thinking

This book gives you seven 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 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.

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?

Seven OSTP 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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1) The table shows a function. What is the range?

x	-2	-1	0	1	2
y	4	1	0	1	4

☐ A. $\{-2, -1, 0, 1, 2\}$

☐ C. $\{1, 4\}$

☐ B. $\{0, 1, 4\}$

☐ D. $\{-2, 4\}$

2) A student claims the sum of interior angles of a nonagon is 1260° . Is this correct?

☐ A. Yes, 1260° is correct.

☐ C. No, it is 1440° .

☐ B. No, it is 1080° .

☐ D. No, it is 1620° .

3) Solve for x : $3(x + 2) - 5 = x + 7$. Show all steps and verify your solution.

4) Multiply: $(3x + 4)(2x - 1)$

☐ A. $5x^2 + 5x - 4$

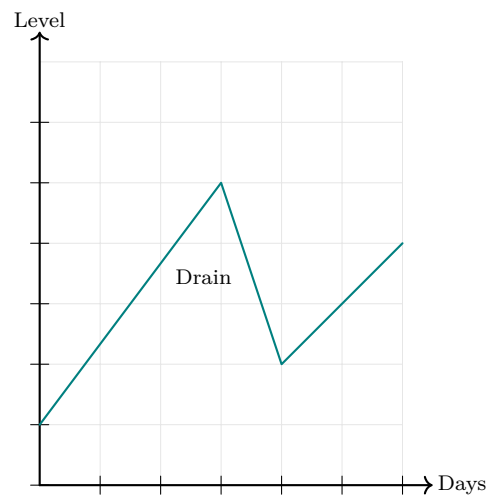
☐ C. $6x^2 + 5x - 4$

☐ B. $6x^2 + 11x - 4$

☐ D. $6x^2 - 3x - 4$



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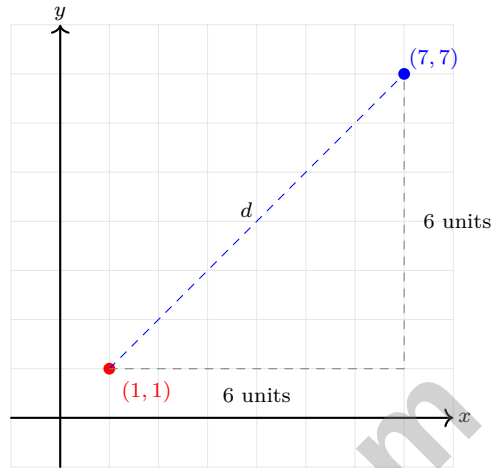
5)

A water tank fills, then drains, then fills again. Based on the graph:

- ☐ A. The tank drains from day 1 to day 3 ☐ C. The tank drains from day 3 to day 4
- ☐ B. The tank drains from day 3 to day 3 ☐ D. The tank never fills again after day 3



- 6) Two points are plotted on a coordinate grid at $(1, 1)$ and $(7, 7)$. What is the distance between them, simplified?



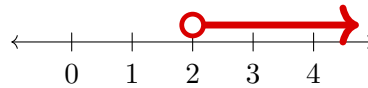
- ☐ A. $6\sqrt{2}$ units
- ☐ B. 12 units
- ☐ C. $\sqrt{72}$ units
- ☐ D. 36 units
- 7) Three similar figures X , Y , and Z have corresponding sides in the ratios $X : Y = 3 : 4$ and $Y : Z = 4 : 7$. If X has a side of 6 cm, what is the length of the corresponding side in Z ?

- ☐ A. 14 cm
- ☐ B. 10.5 cm
- ☐ C. 8 cm
- ☐ D. 18 cm



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1) Solve and graph: $-2x + 3 < -1$. Which describes the graph?

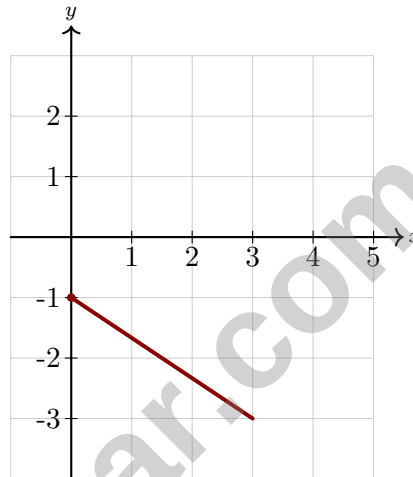


☐ A. $x \geq 2$ with closed circle

☐ C. $x \leq 2$ with closed circle

☐ B. $x < 2$ with open circle

☐ D. $x > 2$ with open circle



2)

What is the y -intercept of the line shown?

☐ A. -3

☐ C. -2

☐ B. 0

☐ D. -1

3) Two equations are given: Equation 1: $2(x + 3) = 2x + 6$ and Equation 2: $2(x + 3) = 2x + 5$. Which statement is true?

☐ A. Both have exactly one solution

☐ C. Both have no solution

☐ B. Equation 1 has one solution;

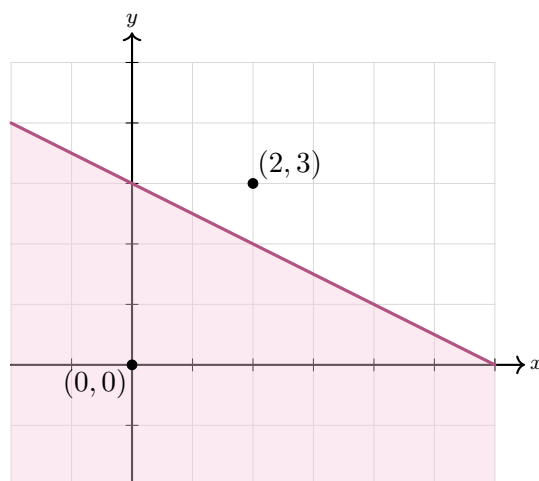
☐ D. Equation 1 has infinitely many

Equation 2 has infinitely many

solutions; Equation 2 has no solution



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4)

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)

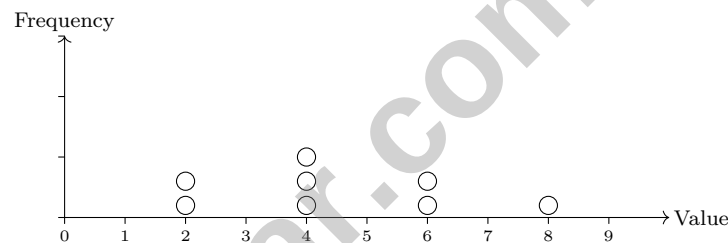


1) Which transformation does **NOT** preserve both distance and angle measure?

- ☐ A. Translation
 ☐ C. Rotation
☐ B. Reflection
 ☐ D. Dilation

2) In a study of 150 students' sleep habits, 90 sleep at least 8 hours and 60 sleep less. Among those sleeping 8+ hours, 63 report feeling rested. What is the joint frequency (as a fraction) of students sleeping 8+ hours and reporting feeling rested?

- ☐ A. $\frac{63}{150}$
☐ C. $\frac{90}{150}$
☐ B. $\frac{63}{90}$
☐ D. $\frac{63}{60}$



3)

Based on the dot plot, find the MAD. (Values: 2, 2, 4, 4, 4, 6, 6, 8; mean = 4.5)

- ☐ A. $\frac{13}{8} = 1.625$
☐ C. 2
☐ B. 1.5
 ☐ D. 2.5

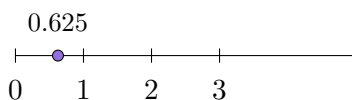
4) When the correlation between two variables is weak, the trend line:

- ☐ A. Has a slope of zero
 ☐ D. Will be very accurate for predictions
☐ B. Should not be used at all
☐ C. Will have large residuals and less reliable predictions



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5)



Which number can be written as a terminating decimal?

☐ A. $\sqrt{5}$

☐ C. $\sqrt{e}$ (where $e \approx 2.718$)

☐ B. $1 + \pi$

☐ D. $\frac{5}{8}$

6) Which equals $0.\overline{36}$?

☐ A. $\frac{36}{100} = \frac{9}{25}$

☐ C. $\frac{36}{90}$

☐ B. $\frac{6}{10}$

☐ D. $\frac{36}{99} = \frac{4}{11}$

7) A square has an area of 75 square units. Between which two integers is the side length?

☐ A. Between 7 and 8

☐ C. Between 6 and 7

☐ B. Between 5 and 6

☐ D. Between 8 and 9

8) Which number is irrational?

☐ A. $\sqrt{9}$

☐ C. $\sqrt{4}$

☐ B. 0.5

☐ D. $\sqrt{8}$

9) What is 0.00056 in scientific notation?

☐ A. 56×10^{-5}

☐ C. 5.6×10^4

☐ B. 5.6×10^{-5}

☐ D. 5.6×10^{-4}



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 B is correct.** (PA.A.1.1) The range is the set of all distinct y -values: 4, 1, 0, 1, 4. As a set: $\{0, 1, 4\}$.
- 2) **Choice A is correct.** (PA.GM.2.3) For a nonagon ($n = 9$): $(9 - 2) \times 180 = 7 \times 180 = 1260^\circ$. The student is correct.
- 3) **The correct answer is $x = 3$.** (PA.A.3.1) Distribute the 3: $3x + 6 - 5 = x + 7$. Simplify: $3x + 1 = x + 7$. Subtract x from both sides: $2x + 1 = 7$. Subtract 1 from both sides: $2x = 6$. Divide by 2: $x = 3$. Verify: $3(3 + 2) - 5 = 3(5) - 5 = 15 - 5 = 10$ and $3 + 7 = 10$ ✓.
- 4) **Choice C is correct.** (PA.A.4.2) FOIL: $(3x + 4)(2x - 1) = 6x^2 - 3x + 8x - 4 = 6x^2 + 5x - 4$.
- 5) **Choice C is correct.** (PA.A.2.1) The graph rises from day 0 to day 3, then decreases from day 3 to day 4 as the tank drains. After day 4, the level increases again as the tank refills.
- 6) **Choice A is correct.** (PA.GM.1.2) $d = \sqrt{(7 - 1)^2 + (7 - 1)^2} = \sqrt{6^2 + 6^2} = \sqrt{36 + 36} = \sqrt{72} = 6\sqrt{2}$ units. (Equivalent: $\sqrt{72} = 6\sqrt{2}$.)
- 7) **Choice A is correct.** (PA.GM.1.1) From $X : Y = 3 : 4$, side in Y is $6 \times \frac{4}{3} = 8$ cm. From $Y : Z = 4 : 7$, side in Z is $8 \times \frac{7}{4} = 14$ cm. Verify: composite ratio $X : Z = \frac{3}{4} \times \frac{4}{7} \times 6 = \frac{3 \times 7 \times 6 \times 7}{3} = 14$ cm.
- 8) **Choice A is correct.** (PA.A.1.3) Slope of p : $(9 - 3)/(4 - 1) = 6/3 = 2 > 0$. Slope of q : $-2 < 0$ (decreases). Only p is positive.
- 9) **Choice B is correct.** (PA.A.2.5) Slope: $m = \frac{9 - 3}{2 - 0.5} = \frac{6}{1.5} = 4$.
- 10) **Choice A is correct.** (PA.GM.1.1) Check: $25 + 100 = 125$, so $5^2 + 10^2 = (\sqrt{125})^2$. Note that $\sqrt{125} = 5\sqrt{5}$. This is a valid right triangle using the converse theorem.
- 11) **Choice C is correct.** (PA.GM.2.1) Radius $r = 12$ cm. $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 1728 = 7234.56$ cm³.
- 12) **Choice B is correct.** (PA.D.1.3) The magnitude (absolute value) of the residual tells us the size of the error. Model 2's error of 5 units is larger than Model 1's error of 2 units, regardless of whether the prediction was too high or too low.
- 13) **Choice C is correct.** (PA.D.2.3) Arranging all 6 books in order is a factorial: $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$.
- 14) **Choice A is correct.** (PA.GM.1.1) For quadrilaterals, having two equal angles is not sufficient to prove congruence. Many quadrilaterals can share two angles but have different side lengths and shapes. Congruence requires all corresponding sides and angles to be equal.
- 15) **The correct answer is -4 .** (PA.A.3.2) Solving gives $x > -4$, so the boundary value is -4 .
- 16) **Choice A is correct.** (PA.GM.1.1) The rule for a 90° counterclockwise rotation about the origin is $(x, y) \rightarrow (-y, x)$. Applying: $(3, -2) \rightarrow (-(-2), 3) = (2, 3)$.
- 17) **Choice B is correct.** (PA.GM.1.1) Alternate exterior angles are congruent: $7k - 3 = 5k + 17 \Rightarrow 2k = 20 \Rightarrow k = 10$.
- 18) **The correct answer is B, E.** (PA.A.2.4) 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 $-\frac{3}{2}$.
- 19) **The correct answer is 7.** (PA.A.4.2) Substitute $(4, 1)$: $2(4) - 1 = 7$.
- 20) **Choice C is correct.** (PA.A.2.4) Four angles around an intersection point sum to 360° . If one angle is b , the sum of the other three is $360 - b$.
- 21) **Choice C is correct.** (PA.GM.2.3) Use $V = \frac{1}{3}Bh$: $192 = \frac{1}{3}B(12)$, so $B = 48$ m². For a square base, $s^2 = 48$, so $s = \sqrt{48} = 4\sqrt{3}$ m.
- 22) **Choice B is correct.** (PA.D.1.1) When points cluster tightly around a line, the correlation is stronger. When points are widely scattered, the correlation is weaker. Students should judge strength by how closely points cluster around an imaginary trend line.
- 23) **Choice C is correct.** (PA.D.1.1) Relative frequency of higher grades among study-group users: $\frac{189}{252} = 0.75$.
- 24) **Choice B is correct.** (PA.GM.1.2) Class Q has larger MAD, indicating varied performance. Students need differentiated instruction because understanding ranges widely. Class P's small MAD suggests consistent mastery.
- 25) **Choice B is correct.** (PA.D.2.1) Two of the five sections are shaded, so $P(\text{shaded}) = \frac{2}{5}$.
- 26) **Choice D is correct.** (PA.D.1.2) A negative trend shows that warmer months have lower heating costs, a natural relationship that does not imply causation.



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Hi, Brave Learner!

◇ No one gets stronger by only doing easy problems. The questions that slowed you down were part of the training. This broad and demanding book gave you seven strong Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Mistakes are not proof that you cannot do math. They are directions. They show what to review, what to ask about, and what to practice next. ★

How to Use Mistakes

- **Name It:** Was it reading, setup, arithmetic, or checking?
- **Fix It:** Correct the work while the question is fresh.
- **Repeat It:** Try one similar problem soon.
- **Remember It:** Write the lesson in your own words.

Grade 8 test-day tip: Treat every corrected error as a point you are preparing to earn next time.

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

Jay Daie

Your Brave-Learning 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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