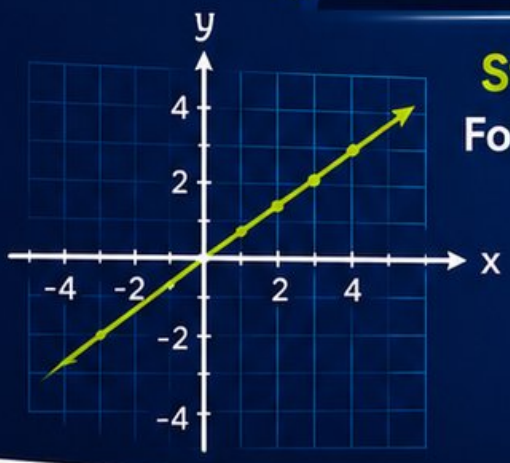
3 Oklahoma OSTP GRADE 8 MATH PRACTICE TESTS



Standards Aligned Problem Solving
For Comprehensive Assessment Programs

$V = s^3$

$y = mx + b$

$2x + 5 = 13$

$x = 4$

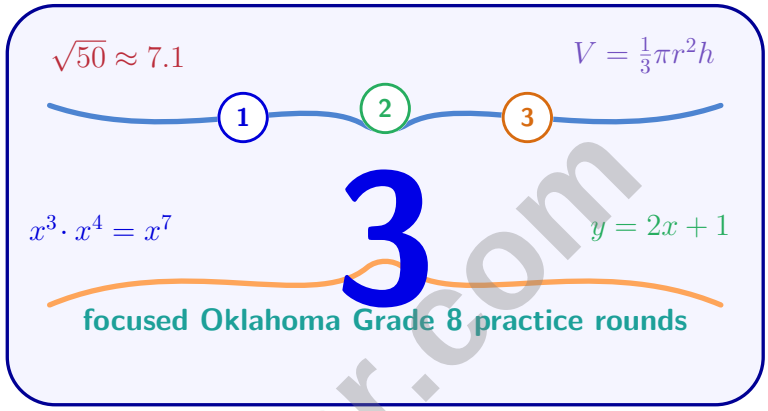
3 PRINTED TESTS

2 ONLINE TESTS

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

3 Oklahoma OSTP Grade 8 Math Practice Tests

Focused Practice for OSTP Grade 8 Math Readiness



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Three 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!

Three focused rounds for sharper OSTP math thinking

This book gives you three 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.

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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.

Oklahoma review rhythm: Work a test, score it, study your misses, then come back ready for the next round with one clear goal.

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For more practice
& answers

What Is Inside?

Three OSTP 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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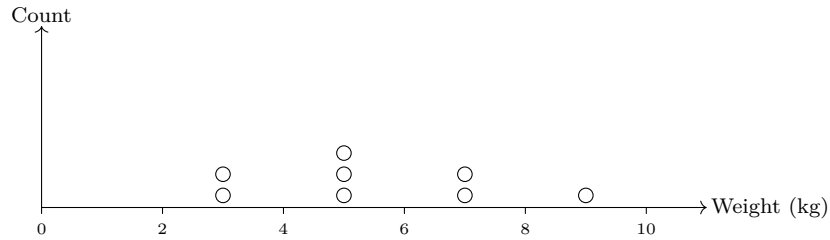
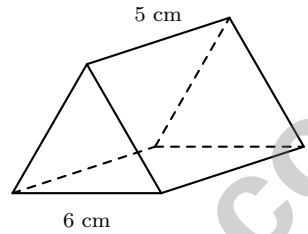
1)



Pet weights: $\{3, 3, 5, 5, 5, 7, 7, 9\}$ kg with mean $= 5.5$ kg. Find MAD.

☐ A. 1.5
☐ C. 2
☐ B. 1.63
☐ D. 2.25

2)



An equilateral triangular prism has triangular bases with side length 6 cm and prism length (height) 5 cm. The height of each equilateral triangle is approximately 5.2 cm. What is the approximate total surface area?

☐ A. 31.2 cm^2
☐ C. 121.2 cm^2
☐ B. 46.8 cm^2
☐ D. 141 cm^2

3) Write 4.7×10^{-4} in decimal (standard) form.

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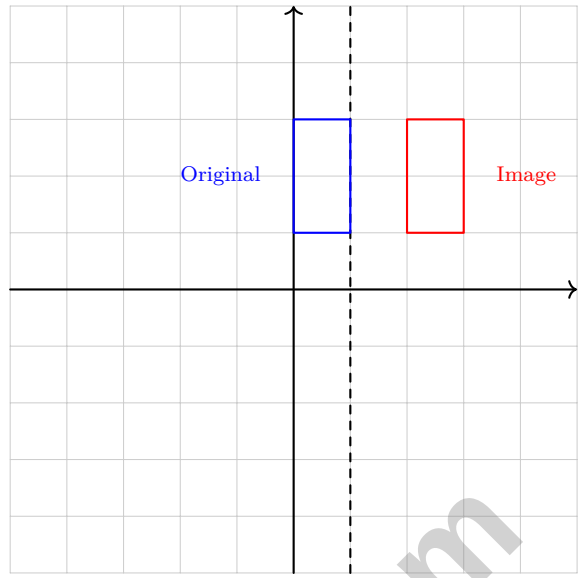
4)



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. $(1, 2)$
- ☐ B. $(2, 2)$
- ☐ C. $(0, 2)$
- ☐ D. $(3, 2)$

5) Two students solve $2x + 5 = 11$ and get different answers: Student A gets $x = 3$ and Student B gets $x = 4$. Without solving, how can you determine which student is correct?

- ☐ A. Substitute each value into the original equation to check which one works
- ☐ B. Solve the equation and see who matched your answer
- ☐ C. Check which value is smaller
- ☐ D. Divide 11 by 2 to see which is closer

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6) Which value of x satisfies $-x + 2 > 5$?

☐ A. $x = -4$
☐ B. $x = 0$
☐ C. $x = 4$
☐ D. $x = 8$

7) Which ordered pair is NOT in the solution region of $x + y \leq 4$?

☐ A. $(1, 2)$
☐ B. $(2, 2)$
☐ C. $(0, 4)$
☐ D. $(3, 2)$

8) A cone has a height of 15 cm. When the volume is 392.5 cm^3, what is the radius? (Use $\pi \approx 3.14$.)

☐ A. 2 cm
☐ B. 3 cm
☐ C. 4 cm
☐ D. 5 cm

9)

A fitness trainer's hourly rate increases with years of experience: $R = 20 + 3x$, where R is hourly rate in dollars and x is years of experience. What is the rate for someone with 6 years of experience?

☐ A. $32
☐ B. $50
☐ C. $38
☐ D. $60

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For more practice & answers

1) If point P is translated by $(x, y) \to (x - 6, y + 4)$, and $P' = (1, 8)$ is the image, what are the coordinates of the original point P?

☐ A. $(7, 4)$
☐ B. $(-5, 4)$
☐ C. $(7, 12)$
☐ D. $(-5, 12)$

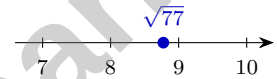
2) Which fraction is equivalent to $0.\overline{999}$?

☐ A. $\frac{999}{1000}$
☐ B. $\frac{9}{10}$
☐ C. $\frac{1}{999}$
☐ D. $\frac{999}{999} = 1$

3) Which is arranged from smallest to largest?

☐ A. $2 \times 10^{1}, 2 \times 10^{-3}, 2 \times 10^{-1}$
☐ B. $2 \times 10^{1}, 2 \times 10^{-1}, 2 \times 10^{-3}$
☐ C. $2 \times 10^{-1}, 2 \times 10^{-3}, 2 \times 10^{1}$
☐ D. $2 \times 10^{-3}, 2 \times 10^{-1}, 2 \times 10^{1}$

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



☐ A. At 9
☐ B. Between 9 and 10
☐ C. Between 8 and 9
☐ D. Between 7 and 8

5) Given $f(x) = 4x - 3$, find $f(5)$.

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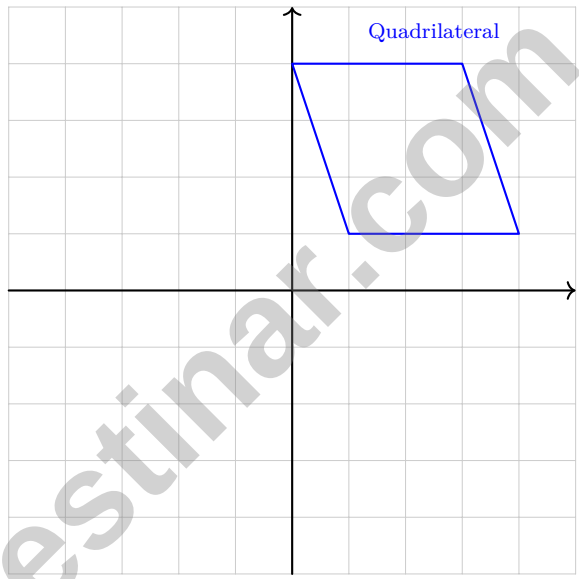
6) Which is larger: $\sqrt{3} \times \sqrt{8}$ or 4.8?

☐ A. Cannot be determined
☐ B. 4.8 is larger
☐ C. They are exactly equal
☐ D. $\sqrt{3} \times \sqrt{8}$ is larger

7) A cylinder has radius 4 cm and height 9 cm. What is the difference between total surface area and lateral surface area?

☐ A. 32π cm^2
☐ B. 16π cm^2
☐ C. 72π cm^2
☐ D. 40π cm^2

8)



If the quadrilateral is translated 2 units left and 3 units down, what is the new position of the vertex originally at $(4, 1)$?

☐ A. $(2, -2)$
☐ B. $(6, 4)$
☐ C. $(2, 4)$
☐ D. $(1, 1)$

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1) A student claims that $\sqrt{49} + \sqrt{64} = \sqrt{113}$. Is this correct?

☐ A. Yes, because $49 + 64 = 113$
☐ B. Yes, but only if we simplify the radicals first
☐ C. No, because square roots cannot be added
☐ D. No, because $\sqrt{49} + \sqrt{64} = 15$

2) A chemist combines a 25% salt solution with an 80% salt solution to make 100 mL of a 50% solution. How many mL of the 25% solution are used?

3) A data analyst fits two different trend lines to a scatter plot. Line A has MAD (mean absolute deviation of residuals) = 0.3, while Line B has MAD = 0.8. Which conclusion is justified?

☐ A. Line B is better because it has a higher MAD
☐ B. Line A is better because residuals are closer to zero
☐ C. Both lines are equally good
☐ D. We cannot compare lines using MAD alone

4) Rectangle $PQRS$ has length 10 m and width 6 m. Rectangle $TUVW$ has length 5 m and width 3 m. What is the scale factor from $PQRS$ to $TUVW$?

☐ A. 2
☐ B. $\frac{1}{2}$
☐ C. 3
☐ D. $\frac{1}{3}$

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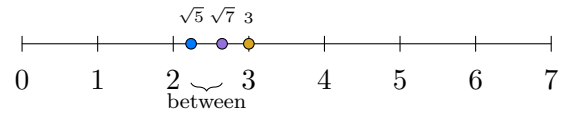
5) The table shows a function. Find $f(0)$.

x	-1	0	1	2
$f(x)$	2	3	4	5

☐ A. 3
☐ B. 2
☐ C. 4
☐ D. 0

6)



Based on the number line, which statement is correct?

☐ A. $\sqrt{5}$ and $\sqrt{7}$ are both less than 1
☐ B. $\sqrt{7} > 3$
☐ C. 3 is irrational
☐ D. $2 < \sqrt{5} < \sqrt{7} < 3$

7) Convert $0.\overline{81}$ to a fraction in simplest form.

☐ A. $\frac{81}{100}$
☐ B. $\frac{1}{81}$
☐ C. $\frac{81}{90}$
☐ D. $\frac{81}{99} = \frac{9}{11}$

8) Convert 3.9×10^0 to standard form.

☐ A. 0.39
☐ B. 390
☐ C. 39
☐ D. 3.9

9) To the nearest whole number, $\sqrt{30} \approx$?

☐ A. 7
☐ B. 6
☐ C. 4
☐ D. 5

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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.GM.1.2 Deviations: $|3-5.5|=2.5$ (twice), $|5-5.5|=0.5$ (three times), $|7-5.5|=1.5$ (twice), $|9-5.5|=3.5$. Sum $=5+1.5+3+3.5=13$. MAD $=13/8=1.625\approx 1.63$.

2) **Choice C is correct.** PA.GM.2.2 Two triangular bases: $2\times\frac{1}{2}(6)(5.2)=31.2$ cm^2. Three rectangular sides: $3\times(6\times 5)=90$ cm^2. Total $\approx 31.2+90=121.2$ cm^2.

3) **The correct answer is** 0.00047 **.** PA.N.1.2 Move the decimal 4 places to the left: $4.7\times 10^{-4}=0.00047$.

4) **Choice B is correct.** PA.GM.1.1 Reflecting across the vertical line $x=1$: distance from $(0,2)$ to the line is 1 unit left. The image is 1 unit right of the line at $(2,2)$.

5) **Choice A is correct.** PA.A.3.1 Substitution is the definitive test: $2(3)+5=11$ ✓ and $2(4)+5=13\neq 11$ ✗. Student A is correct.

6) **Choice A is correct.** PA.A.3.2 Solving $-x+2>5$ gives $-x>3$, so $x<-3$. Only $x=-4$ satisfies this (since $-4<-3$).

7) **Choice D is correct.** PA.A.4.2 Test $(3,2)$: $3+2=5\not\leq 4$ FALSE. The other points all satisfy $x+y\leq 4$.

8) **Choice D is correct.** PA.GM.2.1 Use $V=\frac{1}{3}\pi r^2h$: $392.5=\frac{1}{3}\times 3.14\times r^2\times 15$. Since $\frac{1}{3}\times 15=5$, $392.5=15.7r^2$, so $r^2=25$ and $r=5$ cm.

9) **Choice C is correct.** PA.D.1.3 Substitute $x=6$: $R=20+3(6)=20+18=\$38$.

10) **Choice C is correct.** PA.N.1.3 $5\times 10^3\times 8=(5\times 8)\times 10^3=40\times 10^3=4\times 10^4$.

11) **The correct answer is** $\frac{34}{99}$ **.** PA.N.1.4 Set $x=0.\overline{34}$, so $100x=34.\overline{34}$. Subtracting: $100x-x=34$, giving $99x=34$ and $x=\frac{34}{99}$.

12) **Choice C is correct.** PA.A.2.2 $y=12x$. For $x=3.5$: $y=12(3.5)=42$ dollars.

13) **Choice A is correct.** PA.A.2.4 In slope-intercept form $y=mx+b$, the coefficient m is the slope. Here $m=-2$.

14) **Choice A is correct.** PA.A.4.1 Two lines with different slopes always intersect at exactly one point. The lines $y=mx+3$ and $y=-2x+6$ have different slopes unless $m=-2$. If $m=-2$, the lines have the same slope but different y-intercepts, so they do not intersect.

15) **Choice D is correct.** PA.A.4.2 FOIL: $(2x-5)(3x-2)=6x^2-4x-15x+10=6x^2-19x+10$.

16) **The correct answer is** $(6,7)$ **.** PA.N.1.4 $6^2=36$ and $7^2=49$. Since $36<45<49$, we have $6<\sqrt{45}<7$.

17) **The correct answer is** 4.9 **.** PA.N.1.4 $\sqrt{6}\times\sqrt{4}=\sqrt{24}=2\sqrt{6}\approx 2\times 2.45=4.90$.

18) **Choice B is correct.** PA.A.1.1 Input 5 maps to both 10 and 15, violating the definition of a function.

19) **Choice B is correct.** PA.A.1.3 Table slope: $(6-2)/(2-1)=4$. From $(1,2)$: $2=4(1)+b\Rightarrow b=-2$. So y-intercept is -2. For z: y-intercept is 1. Since $1>-2$, z is higher.

20) **Choice B is correct.** PA.A.2.1 The differences between consecutive y-values are $1-0=1$, $4-1=3$, $9-4=5$, which are not constant, indicating a nonlinear (quadratic) function.

21) **Choice A is correct.** PA.A.2.5 Slope: $m=\frac{5-1}{3-1}=\frac{4}{2}=2$. Using point $(1,1)$: $1=2(1)+b\Rightarrow b=-1$. Equation: $y=2x-1$.

22) **The correct answer is A,C.** PA.N.1.4 $\sqrt{169}=13$ is rational (perfect square). The repeating decimal $0.777\ldots=\frac{7}{9}$ is rational. The other values are irrational: $\sqrt{170}$ (non-perfect square), 2π (irrational multiple of π), and $\sqrt{2}+1$ (irrational plus rational is irrational).

23) **Choice B is correct.** PA.A.2.1 A zero of f is a value of x where $f(x)=0$. This is exactly where the graph crosses the x-axis (x-intercept). Same point, same concept, two names.

24) **Choice B is correct.** PA.GM.1.1 If the quadrilaterals are congruent with P corresponding to T, then $\angle P$ must equal $\angle T$. Since $75^\circ\neq 85^\circ$, the claim of congruence is false.

25) **Choice A is correct.** PA.GM.1.1 Angles x and y are alternate interior angles formed by parallel lines and a transversal, so they are congruent: $y=84^\circ$.

26) **Choice C is correct.** PA.GM.1.1 Check option C: $9^2+12^2=81+144=225=15^2$. This is the 3-4-5 triple scaled by 3.

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Author's Note

A Strong Finish

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.

Jay Daie

Your Grade 8 Math Friend

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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
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- 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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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.