

10 Indiana ILEARN

GRADE
8
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10 PRINTED
TESTS

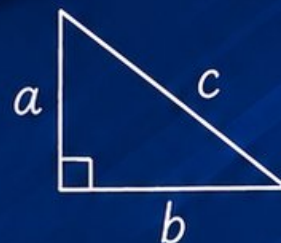


2 ONLINE
TESTS



- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work

$$y = mx + b$$



$$3x - 7 = 2(x + 5)$$
$$x = 17$$

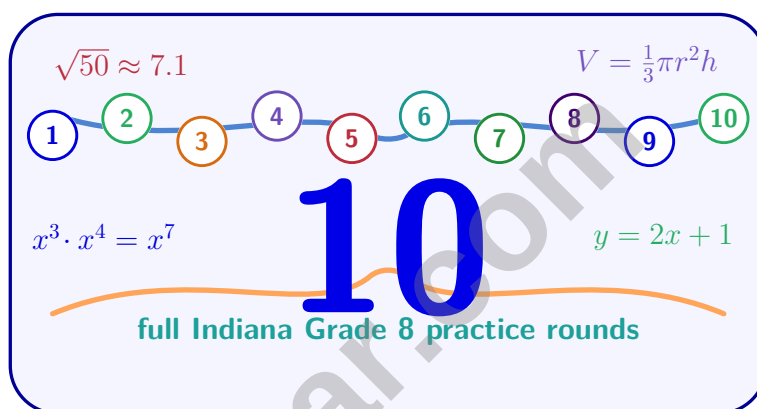


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Indiana ILEARN Grade 8 Math Practice Tests

Indiana Grade 8 ILEARN Practice for well-paced review of rates, real numbers, equations, inequalities, geometry, and probability



Ten complete 40-question Grade 8 ILEARN practice rounds with linear relationships, scientific notation, real numbers, equations, functions, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Indiana Grade 8 Problem Solver!

Ten focused rounds for sharper Indiana ILEARN math thinking

This book gives you ten full Grade 8 ILEARN math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **Estimating Expressions with Irrational Numbers** (8.NS.4): Solve real-world and other mathematical problems with rational numbers. The same routine helps with **Similarity and Dilations** (8.GM.1): Understand similarity through dilations (part of 8.GM.1).

Your Indiana 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 ten-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 a proportion, equation, diagram, number line, 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.

Grade 8 standards focus: Keep the routine connected to **Understanding Scientific Notation** (8.NS.3): Scientific notation is not a dedicated IAS 2023 Grade 8 standard; closest is 8.NS.3 (exponents). You will also meet **Volume of Pyramids** (8.GM.2): Solve real-world problems involving volume of pyramids (part of 8.GM.2).

Indiana 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?

Ten Indiana ILEARN tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Indiana round to show growth across the whole book.
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.

Grade 8 standards focus: Use these habits while practicing **Slope as Rate of Change** (8.AF.2): Understand slope as rate of change. A second useful connection is **Probability of Simple and Compound Events** (8.DSP.3): Calculate probabilities of compound events using organized lists, tables, and tree diagrams.



Scan me!

For more practice
& answers

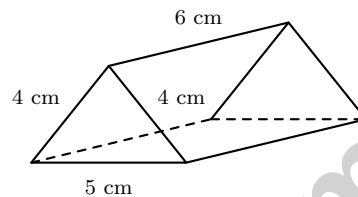
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- 1) Function $f(x) = \frac{3}{4}x + 2$ and g shown in table: (0, 3), (4, 5), (8, 7). Which has steeper slope?

x	0	4	8
$g(x)$	3	5	7

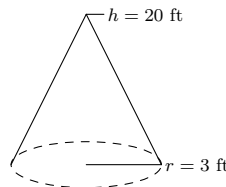
- ☐ A. $f(x)$ is steeper
☐ B. $g(x)$ is steeper
☐ C. Equal slopes
☐ D. Cannot compare



2)

A triangular prism has a triangular base with sides 5 cm, 4 cm, and 4 cm. The height (length) of the prism is 6 cm. The height of the triangle is approximately 3.1 cm. What is the total surface area?

- ☐ A. 72.4 cm^2
☐ B. 84.8 cm^2
☐ C. 96.8 cm^2
☐ D. 93.5 cm^2



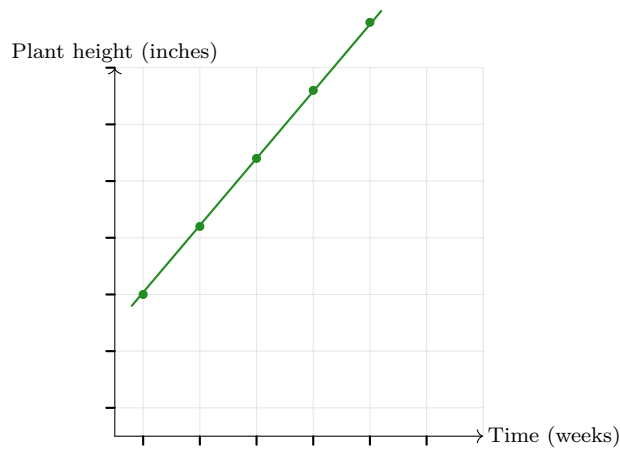
3)

A cone has radius 3 ft and height 20 ft. What is its approximate volume? (Use $\pi \approx 3.14$.)

- ☐ A. 188.4 ft^3
☐ B. 56.52 ft^3
☐ C. 226.08 ft^3
☐ D. 339.12 ft^3



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4)

The best-fit line for plant growth is $h = 1.2t + 2$. At what time will the plant reach 10 inches?

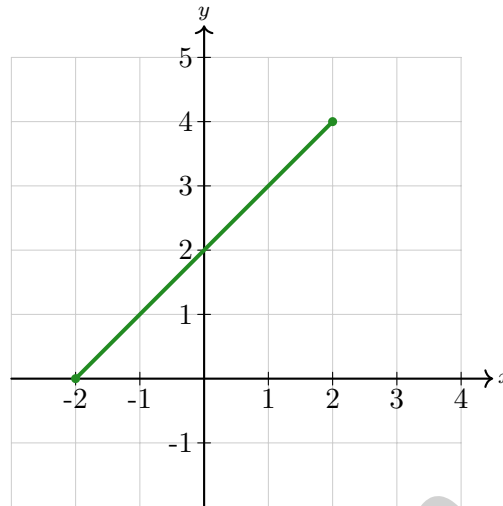
- ☐ A. Approximately 6.7 weeks ☐ C. Approximately 2 weeks
☐ B. Approximately 10 weeks ☐ D. Never reaches 10 inches

5) Does the table show values from the equation $y = 5x$?

x	1	2	3
y	5	10	15

- ☐ A. No, should be $y = 5 + x$ ☐ C. Yes, each y -value is 5 times the matching x -value.
☐ B. No, should be $y = x + 5$ ☐ D. No, missing $x = 0$





6)

What is the equation of the line shown?

☐ A. $y = x + 2$

☐ C. $y = 2x + 4$

☐ B. $y = x - 2$

☐ D. $y = -x + 2$

7) Which trinomial is equivalent to $(x - 8)(x + 3)$?

☐ A. $x^2 - 24$

☐ C. $x^2 + 11x - 24$

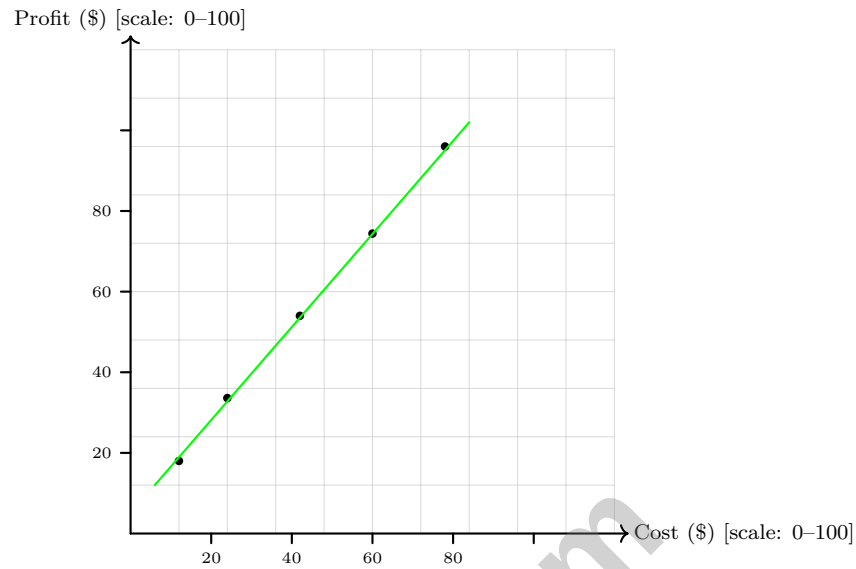
☐ B. $x^2 - 5x - 24$

☐ D. $x^2 - 24x + 3$

8) Which representation does NOT show a function?

☐ A. A table where each x -value appears exactly once.☐ C. A parabola opening to the right:
 $x = y^2$.☐ B. A graph of $y = |x|$.☐ D. The relation $\{(1, 1), (2, 2), (3, 3)\}$.

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1)

Looking at the scatter plot above, approximately what is the profit when the cost is \$60?

☐ A. \$80☐ C. \$40☐ B. \$60☐ D. \$20

2) A triangle has a perimeter of 15 inches. If the triangle is dilated by a scale factor of $\frac{1}{2}$, what is the perimeter of the dilated triangle?

☐ A. 30 inches☐ C. 15 inches☐ B. 7.5 inches☐ D. 10 inches

3) A rectangle's length is 4 cm more than its width. If the perimeter is 32 cm, what is the length?



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4) The table shows $f(x)$. If $f(x) = 8$, what is x ?

x	1	2	3	4
$f(x)$	4	6	8	10

☐ A. 1

☐ C. 3

☐ B. 2

☐ D. 4

Number Sorting

π , $\sqrt{4}$, $0.\bar{5}$, -2.5 , $\sqrt{11}$

How many are rational?

5)

☐ A. One ($\sqrt{4}$ only)

☐ C. Three ($\sqrt{4}$, $0.\bar{5}$, and -2.5)

☐ B. Two ($\sqrt{4}$ and $0.\bar{5}$)

☐ D. Four (all but π or $\sqrt{11}$)

6) Convert $0.\overline{142857}$ (6-digit repeat) to a fraction.

☐ A. $\frac{1}{6}$
☐ C. $\frac{142857}{99999}$
☐ B. $\frac{142857}{100000}$
☐ D. $\frac{142857}{999999} = \frac{1}{7}$

7) Is $\sqrt{10}$ greater than or less than 3.1?

☐ A. Cannot be determined

☐ C. Equal to

☐ B. Less than

☐ D. Greater than

8) Which is the best estimate of π ?

☐ A. 2.14

☐ C. 3.14

☐ B. 3.0

☐ D. 3.5


1) $(4.0 \times 10^5) + (6.0 \times 10^4) = ?$

☐ A. 10×10^4

☐ B. 10×10^5

☐ C. 1.0×10^6

☐ D. 4.6×10^5

2) Solve by substitution:
$$\begin{cases} y = 2x - 5 \\ 4x - y = 7 \end{cases}$$

☐ A. $(1, -3)$

☐ B. $(2, -1)$

☐ C. $(3, 1)$

☐ D. $(4, 3)$

3) A student's test score improves linearly throughout a semester. After assignment 4, the score is 68. After assignment 10, the score is 82. What is the slope (improvement per assignment)?

☐ A. $\frac{7}{3}$ points per assignment

☐ B. 2 points per assignment

☐ C. 3 points per assignment

☐ D. $\frac{1}{2}$ point per assignment

4) A paint shop mixes white and colored paint. They want to make 50 liters of paint that is 60% colored. If they have unlimited supplies of 100% colored and 0% colored (white) paint, how many liters of colored paint do they need?

☐ A. 20 L

☐ B. 40 L

☐ C. 30 L

☐ D. 45 L

5) Which function shows a constant rate of change (linear)?

☐ A. The height of a bouncing ball over time

☐ B. The cost of items at a fixed price per unit

☐ C. The population of a growing organism (exponential)

☐ D. The temperature of cooling coffee (exponential decay)



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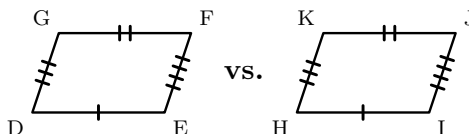
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- 6) Quadrilateral DEFG is congruent to quadrilateral HIJK. A student wrote $DEFG \cong IJKH$. Which error did the student make?



- ☐ A. $DEFG \cong HIJK$ (correct order) ☐ C. $DEFG \cong KJHI$ (wrong order)
☐ B. $DEFG \cong IJKH$ (wrong vertex order) ☐ D. $DEFG \cong IHKJ$ (completely wrong order)
- 7) A segment has endpoints $E(2, 3)$ and $F(5, 7)$. After a translation, E maps to $E'(-1, 2)$. Where does F map to?
- ☐ A. $(2, 6)$ ☐ C. $(2, 4)$
☐ B. $(4, 8)$ ☐ D. $(1, 6)$
- 8) When two parallel lines are cut by a transversal, two co-interior angles are $(2x + 15)^\circ$ and $(x + 45)^\circ$. What is x ?
- ☐ A. 40 ☐ C. 80
☐ B. 60 ☐ D. 120



Indiana ILEARN 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 Indiana ILEARN practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (8.AF.7) Slope of f : $\frac{3}{4} = 0.75$. Slope of g : $(5-3)/4 = 2/4 = 0.5$. Since $0.75 > 0.5$, f is steeper.
- 2) **Choice D is correct.** (8.GM.2) Two triangular bases: $2 \times \frac{1}{2}(5)(3.1) = 15.5 \text{ cm}^2$. Three rectangular sides: $6(5+4+4) = 78 \text{ cm}^2$. Total = $15.5 + 78 = 93.5 \text{ cm}^2$.
- 3) **Choice A is correct.** (8.GM.2) $V = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times 3.14 \times 9 \times 20 = \frac{1}{3} \times 565.2 = 188.4 \text{ ft}^3$.
- 4) **Choice A is correct.** (8.DSP.2) Set $h = 10$: $10 = 1.2t + 2 \Rightarrow 1.2t = 8 \Rightarrow t = \frac{8}{1.2} \approx 6.67$ weeks.
- 5) **Choice C is correct.** (8.AF.2) Each value: $y = 5(1) = 5$, $y = 5(2) = 10$, $y = 5(3) = 15$. All match the equation $y = 5x$.
- 6) **Choice A is correct.** (8.AF.2) Slope = $\frac{4-0}{2-(-2)} = \frac{4}{4} = 1$. Using $(-2, 0)$: $0 = 1(-2) + b$ gives $b = 2$.
- 7) **Choice B is correct.** (8.AF.2) FOIL: $(x-8)(x+3) = x^2 + 3x - 8x - 24 = x^2 - 5x - 24$.
- 8) **Choice C is correct.** (8.AF.3) A parabola opening right fails the vertical line test because vertical lines intersect it twice (except at the vertex). The other options all represent functions.
- 9) **The correct answer is \$240.** (8.GM.3) $I = Prt = 2000 \times 0.03 \times 4 = \240 .
- 10) **The correct answer is 10.** (8.NS.3) Using the quotient rule, $n - 4 = 6$, so $n = 10$. Verification: $\frac{b^{10}}{b^4} = b^6$.
- 11) **Choice C is correct.** (8.AF.5) The y -values double with each unit increase in x (2, 4, 8, 16). This exponential growth pattern is nonlinear; first differences are not constant (2, 4, 8).
- 12) **Choice B is correct.** (8.AF.4) From $x = -1$ to $x = 2$, the graph moves downward from 2 to -1 . The other listed intervals are flat or increasing.
- 13) **Choice B is correct.** (8.GM.1) Both reflection and translation are rigid motions that preserve area. The final shape is congruent to the original, so it has the same area: 24 square units.
- 14) **Choice A is correct.** (8.GM.1) Reflecting across the x -axis maps $(1, 2) \rightarrow (1, -2)$. Translating right 1 and up 1 gives $(2, -1)$, which is a vertex of the image. Checking the other vertices shows the same rule maps the whole rectangle correctly.
- 15) **Choice C is correct.** (8.GM.1) Let angles be $3x$, $4x$, and $5x$. Sum: $3x + 4x + 5x = 180 \Rightarrow 12x = 180 \Rightarrow x = 15^\circ$. Smallest angle: $3x = 45^\circ$.
- 16) **Choice B is correct.** (8.GM.3) When corresponding angles are not congruent, the lines are not parallel. Corresponding angles are congruent only when lines are parallel.
- 17) **Choice A is correct.** (8.GM.1) Large rectangle area = $20 \times 8 = 160 \text{ m}^2$. Small rectangle area = $6 \times 3 = 18 \text{ m}^2$. Remaining = $160 - 18 = 142 \text{ m}^2$.
- 18) **The correct answer is A, C.** (8.DSP.3) A is correct: $P(\text{heads}) = \frac{1}{2}$. C is correct: $P(\text{heads and 4}) = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$. B is wrong: $P(4) = \frac{1}{6}$. D is wrong: total outcomes = 12. E is wrong: $P(\text{not heads}) = \frac{1}{2}$.
- 19) **The correct answer is 22.** (8.NS.3) $22 \times 22 = 484$, so $\sqrt{484} = 22$.
- 20) **Choice C is correct.** (8.DSP.1) Row-conditional frequency: among HR (row total 120), remote workers are 35. Denominator is the row total, not column or grand total.
- 21) **Choice C is correct.** (8.AF.7) Absolute deviations: $|10 - 13| = 3$, $|12 - 13| = 1$, $|14 - 13| = 1$, $|16 - 13| = 3$. Sum = 8. MAD = $8/4 = 2$.
- 22) **Choice C is correct.** (8.NS.3) Divide: $\frac{1.5 \times 10^{11}}{3.8 \times 10^8} \approx \frac{1.5}{3.8} \times 10^3 \approx 0.39 \times 10^3 = 3.9 \times 10^2$.
- 23) **Choice C is correct.** (8.AF.8) Add the equations: $(4x + 3y) + (2x - 3y) = 18 + 6$, so $6x = 24$, giving $x = 4$. Substitute: $4(4) + 3y = 18$, so $16 + 3y = 18$, and $y = 2/3$. Solution: $(4, 2/3)$.
- 24) **The correct answer is 0.** (8.AF.2) Substitute $(0, 0)$: $0 + 3(0) = 0$.
- 25) **Choice A is correct.** (8.AF.6) One-time premium feature fee is \$8 (intercept). Monthly service cost is \$12 (slope). Total is $T = 12m + 8$.
- 26) **Choice A is correct.** (8.GM.3) 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.



Hi, Math Hero!

◇ This full-length book gave you ten complete Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 8 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

★ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ★

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 8 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

Perfect for classroom use, homework, test preparation, and extra practice at home.



THIS BOOK INCLUDES:

10

Full-Length
Printed Tests

2

Online
Practice Tests



Detailed Answers
& Explanations



MORE PRACTICE. GREATER RESULTS.

Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

WHAT YOU'LL GAIN



Build Confidence

Practice regularly to feel prepared and test-ready.



Master Key Skills

Develop strong math skills and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Strategies

Learn proven strategies to approach every question with confidence.



Boost Performance

Apply your knowledge and achieve your best score!

TOPICS COVERED

- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Inequalities
- ✓ Functions
- ✓ Geometry
- ✓ Ratios & Proportions
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement
- ✓ Pythagorean Theorem
- ✓ Surface Area & Volume
- ✓ And More!



2 ONLINE TESTS

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



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY