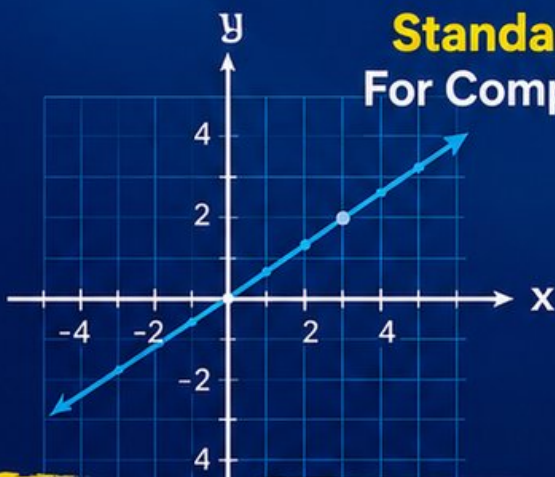
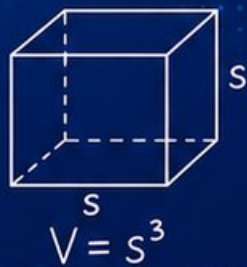


9 Indiana ILEARN Grade 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



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



**9 PRINTED
TESTS**

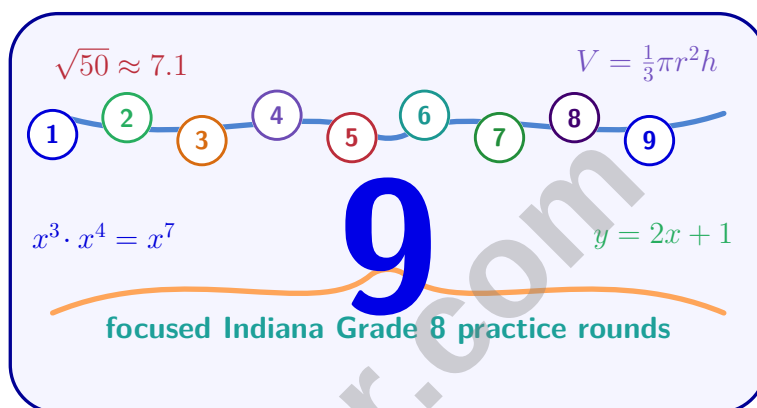


**2 ONLINE
TESTS**

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

9 Indiana ILEARN Grade 8 Math Practice Tests

Standards-Aligned Indiana Prep for Equations, Transformations, Volume, and Data



Nine complete 40-question Grade 8 ILEARN 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



Copyright ©

Testinar Inc



Published by Testinar Inc

Testinar.com

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law, including Section 107 or 108 of the 1976 United States Copyright Act.

This publication is independently produced and has no official connection to any state, district, or national testing program.

Test names and organizational names used herein are the property of their respective trademark holders.



Copyright ©

Welcome, Indiana Grade 8 Problem Solver!

Nine focused rounds for sharper ILEARN math thinking

This book gives you nine full Grade 8 ILEARN 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 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 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.

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?

Nine ILEARN 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.



Scan me!
For more practice
& answers

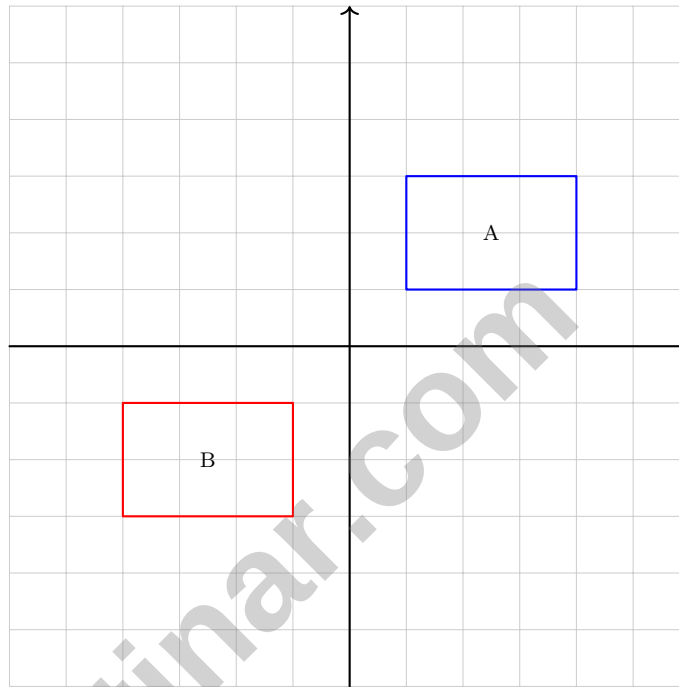
Table of Contents

★ Practice Test 1	13
★ Practice Test 2	28
★ Practice Test 3	45
★ Practice Test 4	61
★ Practice Test 5	77
★ Practice Test 6	92
★ Practice Test 7	107
★ Practice Test 8	122
★ Practice Test 9	138
Practice Test Answer Keys	153
Practice Test Answers and Explanations	159

1) Convert $0.9\overline{3}$ to a fraction in simplest form.

☐ A. $\frac{93}{100}$
☐ B. $\frac{9}{30}$

☐ C. $\frac{93}{99}$
☐ D. $\frac{84}{90} = \frac{14}{15}$



2)

Figure A is transformed to Figure B. Which single transformation is shown?

- ☐ A. Reflection across the x -axis only ☐ C. 180° rotation about the origin
☐ B. Reflection across the y -axis only ☐ D. Dilation by scale factor 2

3) Solve for x : $\frac{3x-2}{5} = 2$

- ☐ A. $x = 4$ ☐ C. $x = 10$
☐ B. $x = 2$ ☐ D. $x = 6$



Scan me!
For more practice
& answers

- 4) Explain why 10^5 is 100 times greater than 10^3 . Use exponents in your reasoning.

- 5) A student graphs $y \geq x$ and mistakenly shades BELOW the line. What is the error?

- | | |
|---|---|
| ☐ A. Should have used a dashed line | ☐ C. Should have shaded BELOW the line |
| ☐ B. Should have shaded ABOVE the line | ☐ D. Should have used the inequality $y < x$ |

- 6) Which expression equals 2^{10} ?

- | | |
|---|---|
| ☐ A. $2^5 + 2^5$ | ☐ C. $(2^5)^2$ |
| ☐ B. $2^6 + 2^4$ | ☐ D. $2^{15} \div 2^6$ |

- 7) Which value of x satisfies $x^2 = 100$?

- | | |
|-------------------------------|--------------------------------|
| ☐ A. 8 | ☐ C. 10 |
| ☐ B. 9 | ☐ D. 11 |

- 8) Three stores sell apples. Store A: 3 pounds for \$6. Store B: 5 pounds for \$11. Store C: 2 pounds for \$5. Which store has the lowest unit price?

- | | |
|--|--|
| ☐ A. Store C (\$2.50 per pound) | ☐ C. Store A (\$2 per pound) |
| ☐ B. Store B (\$2.20 per pound) | ☐ D. Store A and Store B are the same |



9) A line passes through $(0, 7)$ and $(3, 1)$. What is the slope?

☐ A. 2

☐ C. 3

☐ B. -3

☐ D. -2

10) Using $\sqrt{2} \approx 1.41$, estimate $3 + \sqrt{2}$ to the nearest hundredth.

11) Solve: $-\frac{1}{2}x + 3 \geq 5$

☐ A. $x \geq -4$

☐ C. $x \geq 4$

☐ B. $x \leq 4$

☐ D. $x \leq -4$

12) If a square has side length $(x + 3)$, and a smaller square inside has side length $(x - 3)$, what is the difference in their areas?

☐ A. 6

☐ C. $12x$

☐ B. 9

☐ D. x^2

13) The table below shows a relation. Is it a function?

x	y
1	3
2	6
3	9
4	12

☐ A. No, because the outputs are larger than inputs.

☐ C. No, because y values increase by 3.

☐ B. Yes, each input has exactly one output.

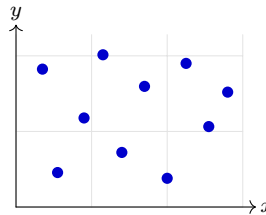
☐ D. Yes, because all values are positive.



Scan me!
For more practice
& answers

- 1) A transversal intersects two parallel lines. One of the angles formed is 123° . What is the measure of the adjacent angle on the same side of the transversal?

- ☐ A. 57°
☐ C. 180°
☐ B. 123°
☐ D. 246°



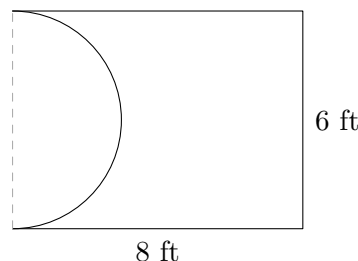
2)

A scatter plot shows two variables with points scattered randomly in all directions with absolutely no visible trend or pattern. What does this indicate about the relationship between the variables?

- ☐ A. No correlation
 ☐ C. Strong negative correlation
☐ B. Strong positive correlation
 ☐ D. Perfect linear relationship

- 3) A student calculated the perimeter of a composite figure (semicircle on a rectangle) by adding dimensions: $8 + 6 + 8 + 6 + \pi \times 4 = 28 + 4\pi \approx 40.56$ ft. Which error did they make?

$d = 6$ ft



- ☐ A. Forgot to use the diameter, not radius.
☐ B. Double-counted the top of the rectangle where the semicircle attaches.
☐ C. Used perimeter formula instead of area.
☐ D. Calculated the radius as diameter.



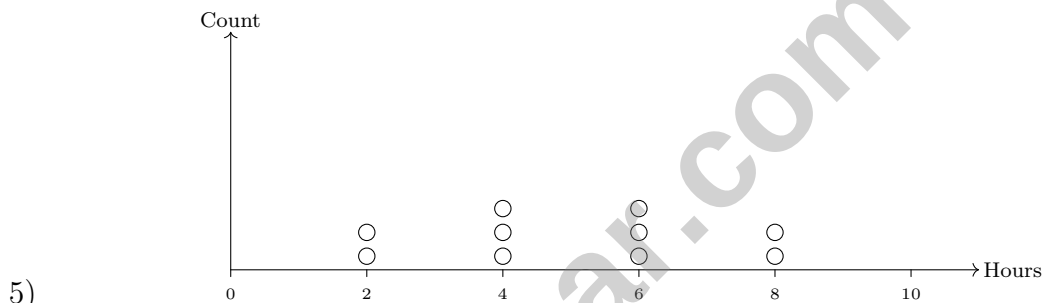
Scan me!
For more practice
& answers

4) A two-way table of 480 products tracks quality and price point:

	Premium	Standard	Total
High Quality	240	80	320
Low Quality	48	112	160
Total	288	192	480

What joint relative frequency represents high-quality premium products?

- ☐ A. $\frac{240}{320} = 0.75$
☐ C. $\frac{240}{480} = 0.50$
- ☐ B. $\frac{240}{288} \approx 0.83$
☐ D. $\frac{320}{480} \approx 0.67$



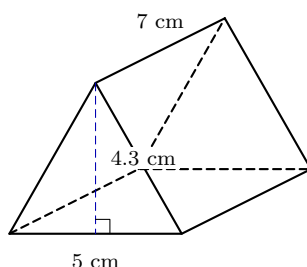
- ☐ A. 1.76
 ☐ C. 2.6 (divided sum of deviations by 8 instead of 10)
- ☐ B. 2.0 (used range $\div 5$ instead of sum of deviations $\div n$)
 ☐ D. 3.2 (used largest deviation only)
- 6) A bag contains 15 marbles: 5 red, 4 blue, 3 green, and 3 yellow. If one marble is drawn at random, what is the probability of drawing a red or green marble?

- ☐ A. $\frac{4}{15}$
☐ C. $\frac{5}{15}$
- ☐ B. $\frac{3}{15}$
☐ D. $\frac{8}{15}$



- 1) A plane is descending. Its altitude decreases 2000 feet for every 5 minutes. What is the slope of altitude versus time?

- ☐ A. 400 feet per minute ☐ C. $\frac{5}{2000}$ feet per minute
☐ B. 2000 feet per minute ☐ D. -400 feet per minute



2)

A triangular prism has equilateral triangular bases with side length 5 cm (height ≈ 4.3 cm) and depth 7 cm. What is the approximate total surface area?

- ☐ A. 21.5 cm^2 ☐ C. 126.5 cm^2
☐ B. 43 cm^2 ☐ D. 172.5 cm^2

- 3) A student computed the volume of a cylinder with radius 3 cm and height 8 cm as $V = 3.14 \times 3 \times 8 = 75.36 \text{ cm}^3$. What error did the student make?

- ☐ A. Used diameter instead of radius ☐ C. Used the cone formula by mistake
☐ B. Forgot to square the radius ☐ D. Did not use π correctly

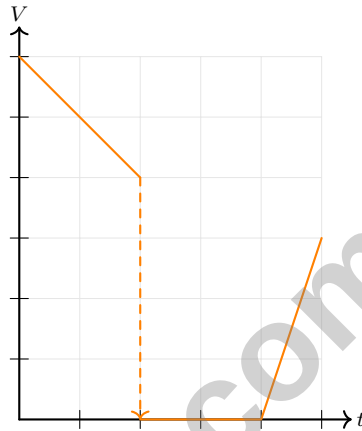
- 4) In a study, the relationship between calories burned and exercise minutes is $B = 4m + 50$. Is predicting calories burned after 25 minutes of exercise interpolation or extrapolation, given that the data was collected for exercises lasting 5 to 20 minutes?

- ☐ A. Interpolation, because 25 is between 5 and 20 ☐ C. Neither; the model does not apply
☐ B. Extrapolation, because 25 is outside the data range ☐ D. Interpolation, because 25 is close to 20



5) 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



6)

A tank scenario: drains linearly $[0, 2]$, pumped dry $[2, 2]$, refills $[4, 5]$. Identify the discontinuity.

- ☐ A. At $t = 2$ (vertical jump down from 4 to 0) ☐ C. At $t = 5$ (final value unclear)
☐ B. At $t = 4$ (gap in time) ☐ D. No discontinuities (function is continuous)

7) Polygon ABCD is translated 4 units left and 3 units down to form polygon A'B'C'D'. If angle A measures 85° , what is the measure of angle A'?

- ☐ A. 42.5° ☐ C. 85°
☐ B. 75° ☐ D. 95°



Scan me!
For more practice
& answers

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.

**Scan me!**For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.NS.1) Let $x = 0.\overline{93} = 0.9333\dots$. Then $10x = 9.\overline{3}$ and $100x = 93.\overline{3}$. Subtracting: $90x = 84$, so $x = \frac{84}{90} = \frac{14}{15}$.
- 2) **Choice C is correct.** (8.GM.1) A 180° rotation maps each point (x, y) to $(-x, -y)$, which sends Figure A directly onto Figure B. The size is unchanged, so no dilation is involved.
- 3) **Choice A is correct.** (8.AF.1) Multiply both sides by 5: $3x - 2 = 10$. Add 2: $3x = 12$. Divide by 3: $x = 4$.
- 4) **The correct answer is 100.** (8.NS.3) When dividing powers with the same base, subtract the exponents. $10^{5-3} = 10^2$, and $10^2 = 100$, so 10^5 is 100 times larger than 10^3 .
- 5) **Choice B is correct.** (8.AF.2) For $y \geq x$, the solution region is above the line. The boundary is solid because the inequality includes equality.
- 6) **Choice C is correct.** (8.NS.3) $(2^5)^2 = 2^{5 \cdot 2} = 2^{10}$. The other choices do not simplify to 2^{10} .
- 7) **Choice C is correct.** (8.NS.3) $10 \times 10 = 100$, so $x = 10$ (taking the positive root).
- 8) **Choice C is correct.** (8.AF.2) Store A: $6/3 = 2$ per pound. Store B: $11/5 = 2.20$ per pound. Store C: $5/2 = 2.50$ per pound. Store A is cheapest.
- 9) **Choice D is correct.** (8.AF.2) Slope = $\frac{1-7}{3-0} = \frac{-6}{3} = -2$.
- 10) **The correct answer is 4.41.** (8.NS.1) Compute $3 + 1.41 = 4.41$.
- 11) **Choice D is correct.** (8.AF.1) Subtract 3: $-\frac{1}{2}x \geq 2$. Multiply by -2 (FLIP): $x \leq -4$.
- 12) **Choice C is correct.** (8.AF.2) Difference of squares: $(x+3)^2 - (x-3)^2 = [(x+3) + (x-3)][(x+3) - (x-3)] = (2x)(6) = 12x$.
- 13) **Choice B is correct.** (8.AF.3) Each input value (1, 2, 3, 4) corresponds to exactly one output value (3, 6, 9, 12). The relationship is $y = 3x$, making it a function.
- 14) **The correct answer is 9.4.** (8.NS.2) The side length is $\sqrt{88}$. Since $9^2 = 81$ and $10^2 = 100$, and 88 is closer to 81, we estimate $\sqrt{88} \approx 9.38 \approx 9.4$.
- 15) **Choice C is correct.** (8.AF.5) $y = \frac{1}{2}x$ is in the form $y = mx + b$ with $m = \frac{1}{2}$ and $b = 0$. The others are incorrectly classified.
- 16) **Choice C is correct.** (8.GM.1) The perimeter of Rectangle 1 is $2(12) + 2(5) = 24 + 10 = 34$ inches. Since Rectangle 2 is congruent, it has the same perimeter: 34 inches.
- 17) **Choice B is correct.** (8.GM.1) Reflection across the x -axis negates the y -coordinate: $(x, y) \rightarrow (x, -y)$. So $(6, 4) \rightarrow (6, -4)$.
- 18) **Choice C is correct.** (8.GM.3) Avoiding 12% interest is better than earning 6% return. For the same \$1,500 over 5 years, paying down 12% debt avoids about \$900 of simple interest, while a 6% investment earns about \$450 of simple interest.
- 19) **Choice D is correct.** (8.NS.3) Multiply coefficients: $5 \times 4 = 20$. Add exponents: $10^{7+3} = 10^{10}$. Rewrite $20 \times 10^{10} = 2 \times 10^{11}$.
- 20) **The correct answer is A, E.** (8.GM.3) A is true because the distance formula applies the Pythagorean Theorem to the horizontal and vertical legs between two points. E is true because reversing the points only changes the signs of the differences, and squaring gives the same result. B and C are false because the formula works with positive or negative differences and coordinates. D is false because distances can be irrational, such as $\sqrt{50}$.
- 21) **The correct answer is 4.2.** (8.NS.4) $\sqrt{8} = 2\sqrt{2} \approx 2.83$ and $\sqrt{2} \approx 1.41$, so $2.83 + 1.41 = 4.24 \approx 4.2$.
- 22) **Choice A is correct.** (8.AF.8) Check (3, 6) in both equations: $6 = 2(3) = 6$ ✓ and $6 = 3 + 3 = 6$ ✓. The solution is correct.
- 23) **Choice B is correct.** (8.AF.7) P pace: 8 mph. Q pace: $(27 - 2)/3 = 25/3 \approx 8.33$ mph. Since $8.33 > 8$, Q is faster.
- 24) **Choice B is correct.** (8.AF.6) Using $y = mx + b$: $10 = 3(2) + b \Rightarrow 10 = 6 + b \Rightarrow b = 4$.
- 25) **Choice A is correct.** (8.AF.4) From $x = -1$ to $x = 1$: the function is constant at $f(x) = 2$ (neither increasing nor decreasing). From $x = 1$ to $x = 3$: the function increases from 2 to 4. From $x = 3$ onward: the function decreases.
- 26) **Choice A is correct.** (8.GM.1) Exterior angle = sum of remote interior angles: $117 = 68 + x$, so $x = 49^\circ$.



Scan me!
For more practice
& answers

The Power of Showing Work

Hi, Organized Solver!

◇ You practiced Grade 8 skills that often require more than one step. That means your written work matters. ◇

★ **Remember this:** Showing work is not extra. It is how you track your thinking, find errors, and prove that your answer did not happen by luck. You practiced across 9 full Grade 8 practice tests, and that repeated effort matters. ★

Organized Work Habits

- **One Line Per Step:** Keep the path readable.
- **Box the Answer:** Make the final result easy to find.
- **Use Labels:** Tell what each value represents.
- **Check the Path:** Follow your steps backward if needed.

Grade 8 test-day tip: When a problem has several steps, write less on each line. Space makes checking easier.

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

Jay Daie

Your Organized-Work Coach

CONFIDENCE TODAY, SUCCESS TOMORROW!

GRADE

8

Help your child excel in math with **9 full-length Grade 8 practice tests** designed to reflect real test formats and cover all key math standards.

With a wide variety of questions and real-world applications, this book builds the skills and confidence students need to achieve their best!



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! |



2 Extra Online Practice Tests Included!

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

testinar.com/math8



PRACTICE. PREPARE. SUCCEED.



Testinar

More Practice. More Confidence.
Better **Results**.