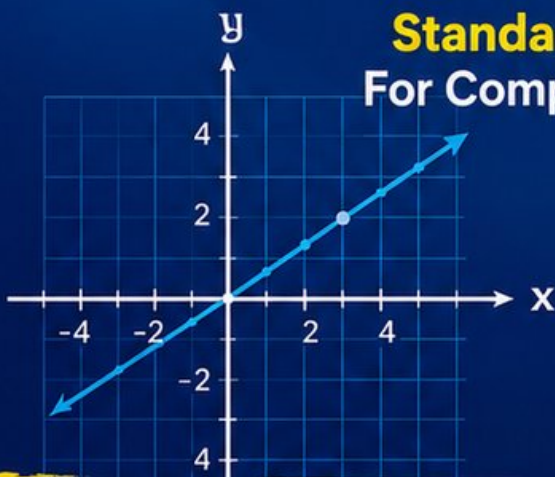
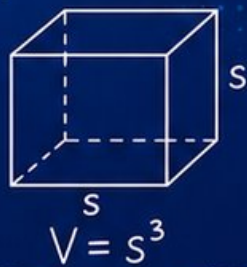


9 Tennessee TCAP Grade 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



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



**9 PRINTED
TESTS**

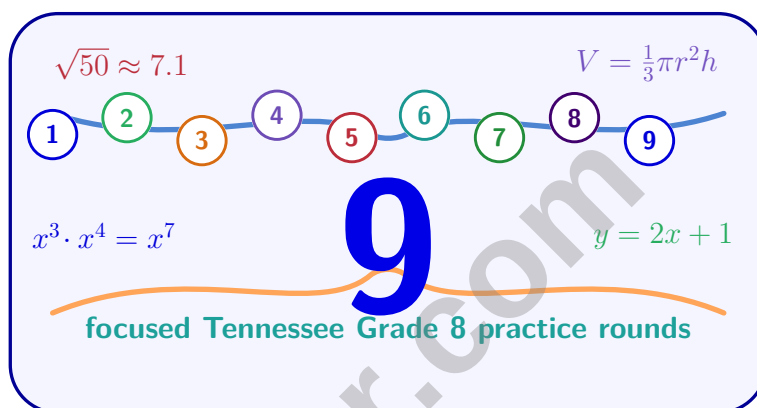


**2 ONLINE
TESTS**

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

9 Tennessee TCAP Grade 8 Math Practice Tests

Student-Friendly Tennessee Review for Grade 8 Algebra, Geometry, and Statistics



Nine complete 40-question Grade 8 TCAP 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, Tennessee Grade 8 Problem Solver!

Nine focused rounds for sharper TCAP math thinking

This book gives you nine full Grade 8 TCAP 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 Tennessee 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.

Tennessee 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 TCAP 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	_____	14
★ Practice Test 2	_____	29
★ Practice Test 3	_____	45
★ Practice Test 4	_____	60
★ Practice Test 5	_____	76
★ Practice Test 6	_____	92
★ Practice Test 7	_____	108
★ Practice Test 8	_____	124
★ Practice Test 9	_____	140
Practice Test Answer Keys	_____	155
Practice Test Answers and Explanations	_____	161

1) A distance formula for a moving object is $d = 45t$, where d is distance in miles and t is time in hours. What is the slope, and what does it represent?

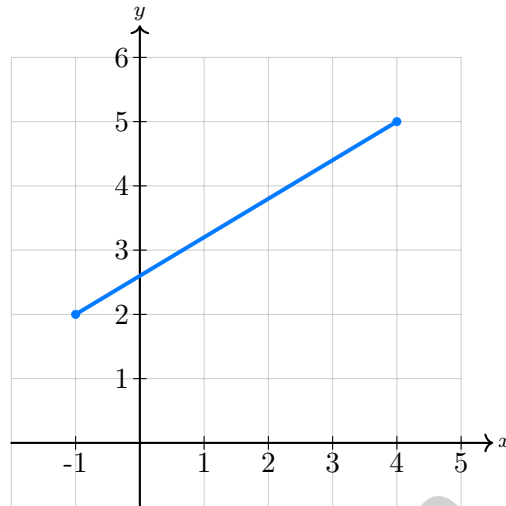
- ☐ A. Slope is 45; represents the speed in mph ☐ C. Slope is 1; represents constant velocity
- ☐ B. Slope is 45; represents the distance traveled ☐ D. Slope is 0; the object is stationary

2) A figure is translated 6 units left and 3 units up. Which rule describes this translation?

- ☐ A. $(x, y) \rightarrow (x - 6, y + 3)$ ☐ C. $(x, y) \rightarrow (x - 6, y - 3)$
- ☐ B. $(x, y) \rightarrow (x + 6, y - 3)$ ☐ D. $(x, y) \rightarrow (x + 6, y + 3)$

3) 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?





4)

Using the two points marked, which equation represents this line?

☐ A. $y = \frac{3}{5}x + \frac{13}{5}$

☐ B. $y = \frac{3}{5}x + 3$

☐ C. $y = 3x + 5$

☐ D. $y = \frac{2}{3}x + \frac{8}{3}$

5) A student solved $5x - 8 = 12$ and got $x = 3$. Is this correct?

☐ A. Yes, the answer is correct☐ B. No; the correct answer is $x = 1$ ☐ C. No; the correct answer is $x = 2.8$ ☐ D. No; the correct answer is $x = 4$

6) Which is the best estimate of $3\sqrt{5}$?

☐ A. 4.5☐ B. 6.0☐ C. 6.7☐ D. 9.8

7) $(4.5 \times 10^{-6}) \times (2 \times 10^{-4}) = ?$

☐ A. 9×10^{-2}

☐ B. 6.5×10^{-10}

☐ C. 9×10^{-10}

☐ D. 9×10^{24}



Scan me!
For more practice
& answers

- 8) 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. $x + 6 \leq 15$
- 9) For the inequality $y < -2x + 5$, which statement about the boundary line is true?
- ☐ A. The boundary line is solid ☐ C. The boundary line is vertical
☐ B. The boundary line is dashed ☐ D. The boundary line is horizontal
- 10) Which equation represents a LINEAR function?
- ☐ A. $y = 2^x$ ☐ C. $y = |x| + 1$
☐ B. $y = \frac{5}{x-2}$ ☐ D. $y = -3x + 4$
- 11) A plant grows such that its height is modeled by $h = 2t + 15$, where h is height in cm and t is time in weeks. Interpret the meaning of the number 2 in this equation.
- ☐ A. The plant starts at a height of 2 cm. ☐ C. The plant reaches a height of 2 cm.
☐ B. The plant grows 2 cm per week. ☐ D. The plant grows for 2 weeks total.
- 12) Triangle XYZ has angle measures of $45^\circ, 60^\circ, 75^\circ$. Triangle ABC is congruent to triangle XYZ. What are the angle measures of triangle ABC?
- ☐ A. $30^\circ, 60^\circ, 90^\circ$ ☐ C. $50^\circ, 65^\circ, 65^\circ$
☐ B. $45^\circ, 60^\circ, 75^\circ$ ☐ D. $40^\circ, 60^\circ, 80^\circ$
- 13) A segment from $(0, 0)$ to $(9, 12)$ is dilated by scale factor $\frac{2}{3}$ centered at the origin. What is the length of the dilated segment?
- ☐ A. 20 units ☐ C. 15 units
☐ B. 12 units ☐ D. 10 units



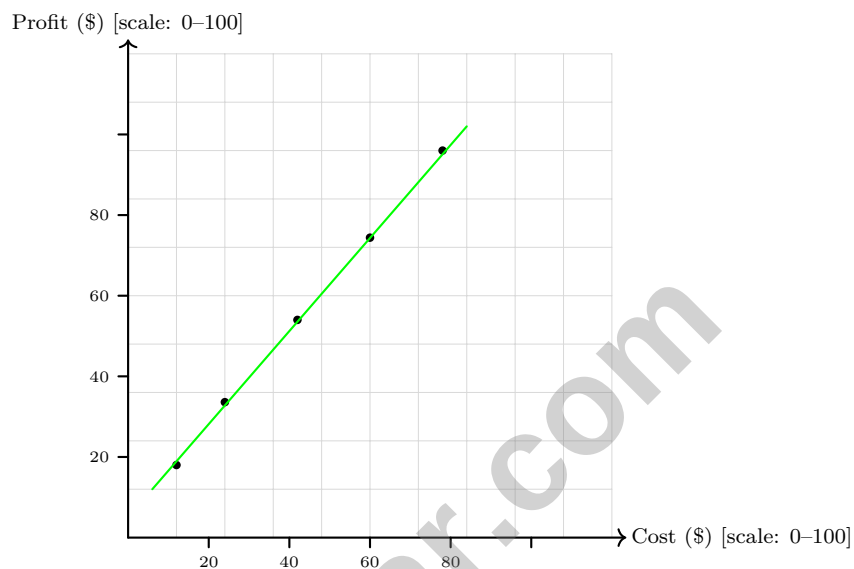
1) Estimate $\sqrt{99}$ to the nearest integer.

☐ A. 8

☐ C. 10

☐ B. 9

☐ D. 11



2)

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

☐ A. \$80

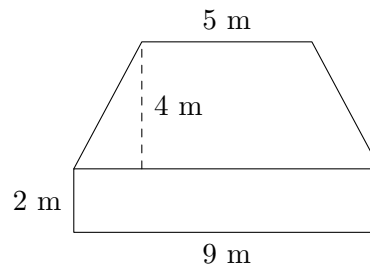
☐ C. \$40

☐ B. \$60

☐ D. \$20



- 3) A composite figure has a trapezoid (parallel sides 5 m and 9 m, height 4 m) with a rectangle attached to the longer base (length 9 m, width 2 m). What is the total area?



- ☐ A. 28 m^2
☐ C. 46 m^2
☐ B. 36 m^2
☐ D. 56 m^2
- 4) A two-way table shows that 30 students like pizza and 20 like sandwiches. 15 of those who like pizza are girls. What is the relative frequency of girls among pizza-likers?

	Girls	Total
Pizza	15	30
Sandwiches	–	20

- ☐ A. 50%
 ☐ C. 30%
☐ B. 60%
 ☐ D. 75%
- 5) A box contains 6 pencils: 2 red, 3 blue, and 1 green. If you draw a pencil, replace it, then draw again, what is the probability of drawing blue both times?

- ☐ A. $\frac{9}{36}$
☐ C. $\frac{3}{18}$
☐ B. $\frac{1}{3}$
☐ D. $\frac{3}{6}$



Scan me!

For more practice
& answers

1) 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

2) A cube has an edge length of 5 cm. What is its total surface area?

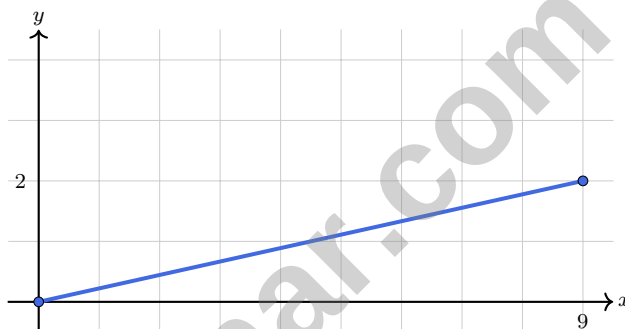
☐ A. 25 cm^2

☐ C. 125 cm^2

☐ B. 75 cm^2

☐ D. 150 cm^2

3)



The slope is approximately:

☐ A. 0.18

☐ C. 4.5

☐ B. 9

☐ D. 0.22

4) A student has 45 points and earns 5 points per quiz. How many quizzes are needed to reach at least 70 points?

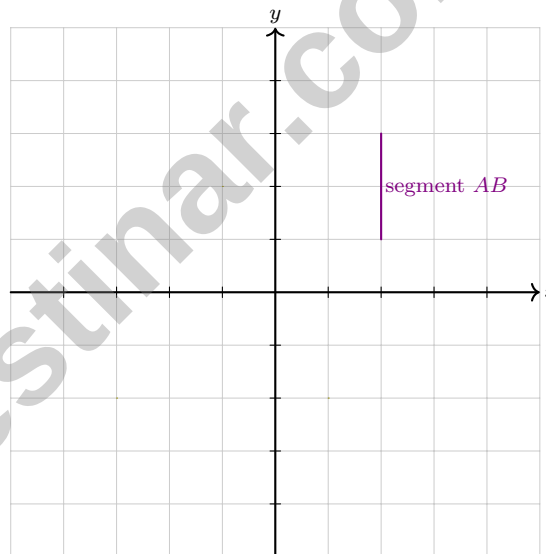


5) Which scenario represents a relation that is NOT a function?

- ☐ A. A car's speed and time (one time, one speed).
- ☐ B. A student's name and age (one person, one age).
- ☐ C. A product's barcode and all price changes (one barcode, many prices over time).
- ☐ D. A city and its mayor (one city, one mayor).

6) A shape is reflected across a vertical line and then translated 5 units to the right. If the original shape has area 24 square units, what is the area of the final shape?

- ☐ A. 12 square units
- ☐ B. 24 square units
- ☐ C. 48 square units
- ☐ D. 120 square units



7)

Segment AB with endpoints $A(2, 1)$ and $B(2, 3)$ is rotated 90° counterclockwise about the origin. Which of the following is an endpoint of the image segment $A'B'$?

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



Scan me!
For more practice
& answers

Tennessee TCAP 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 Tennessee TCAP practice test.



Scan me!
For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (8.SP.A.3) In $d = mt + b$ form, $m = 45$ is the slope. Here it represents speed: 45 miles per hour.
- 2) **Choice A is correct.** (8.G.A.1) Left = subtract from x ; up = add to y . The rule is $(x, y) \rightarrow (x - 6, y + 3)$. Distractor E reverses and swaps the direction values.
- 3) **The correct answer is -2 .** (8.EE.A.3) With the same coefficient, the smallest power has the smallest exponent: -2 .
- 4) **Choice A is correct.** (8.EE.B.6) Slope = $\frac{5-2}{4-(-1)} = \frac{3}{5}$. Using $(-1, 2)$: $2 = \frac{3}{5}(-1) + b$ gives $b = \frac{13}{5}$.
- 5) **Choice D is correct.** (8.EE.C.7) Check: $5(3) - 8 = 15 - 8 = 7 \neq 12$. Correct solution: Add 8: $5x = 20$. Divide by 5: $x = 4$.
- 6) **Choice C is correct.** (8.NS.A.2) $\sqrt{5} \approx 2.24$, so $3\sqrt{5} \approx 3 \times 2.24 = 6.72$.
- 7) **Choice C is correct.** (8.EE.A.4) Multiply coefficients: $4.5 \times 2 = 9$. Add exponents: $10^{-6+(-4)} = 10^{-10}$. Result: 9×10^{-10} .
- 8) **Choice D is correct.** (8.EE.C.9) "A number increased by 6" is $x + 6$; "at most" means $\leq$. So $x + 6 \leq 15$.
- 9) **Choice B is correct.** (8.EE.C.9) A strict inequality, such as $<$, uses a dashed boundary line because points on the line are not included in the solution.
- 10) **Choice D is correct.** (8.F.A.3) Only $y = -3x + 4$ fits the linear form $y = mx + b$. Options A (exponential), B (reciprocal), and C (absolute value) are all nonlinear.
- 11) **Choice B is correct.** (8.F.B.4) In $h = mt + b$, the slope $m = 2$ represents the rate of change: 2 cm per week. The number 15 is the initial height (intercept).
- 12) **Choice B is correct.** (8.G.A.2) Congruent triangles have equal corresponding angles. Triangle ABC has the same angle measures as triangle XYZ: $45^\circ, 60^\circ, 75^\circ$.
- 13) **Choice D is correct.** (8.G.A.1) Original length: $\sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15$. Dilated: $15 \times \frac{2}{3} = 10$.
- 14) **Choice B is correct.** (8.G.B.3, 8.G.B.4) Verify: $121 + 3600 = 3721 = 61^2$. This is the 11-60-61 Pythagorean triple.
- 15) **The correct answer is 3.** (8.NS.A.1) Each radicand is between 4 and 9, so each square root is between 2 and 3.
- 16) **Choice A is correct.** (8.G.B.5) $d = \sqrt{(7-0)^2 + (24-0)^2} = \sqrt{49 + 576} = \sqrt{625} = 25$.
- 17) **Choice C is correct.** (8.G.B.4) Interest: $I = 1200 \times 0.08 \times 2 = \192 . Total: $A = 1200 + 192 = \$1,392$.
- 18) **Choice D is correct.** (8.EE.A.1) Numerator: $g^8 \cdot g^{-2} = g^6$. Then $\frac{g^6}{g^3} = g^3$.
- 19) **Choice D is correct.** (8.EE.A.2) $19 \times 19 = 361$, so $\sqrt{361} = 19$.
- 20) **The correct answer is A, B.** (8.G.C.6) 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).
- 21) **Choice C is correct.** (8.EE.B.5) Substitute $x = 7$ into $y = 2x$: $y = 2(7) = 14$. The cost is \$14.
- 22) **Choice A is correct.** (8.EE.C.8) Substitute $y = 2x - 5$ into $4x - y = 7$: $4x - (2x - 5) = 7$, so $2x + 5 = 7$ and $x = 1$. Then $y = 2(1) - 5 = -3$, so the solution is $(1, -3)$.
- 23) **Choice A is correct.** (8.EE.C.9) GCF is x^2 : $x^3 + 5x^2 = x^2(x + 5)$.
- 24) **Choice B is correct.** (8.F.A.1) Option B: every real input x has exactly one real cube root. Option A (circle): fails VLT. Option C: every positive x gives two y -values ($\pm x$). Option D: every positive x gives two outputs.
- 25) **Choice A is correct.** (8.F.A.2) $T_{\text{oven}}(10) = 15(10) + 70 = 220$ degrees. Slope of freezer: $(-15 - (-5))/2 = -5$, so $T_{\text{freeze}}(10) = -5 - 5(10) = -55$ degrees. Oven at 220 is much warmer.
- 26) **Choice A is correct.** (8.F.B.5) The scenario describes three distinct behaviors: rising speed (increasing), constant speed (flat), and decreasing speed (falling). This is a piecewise linear graph with three segments.
- 27) **Choice A is correct.** (8.G.A.2) Angle 1 (63°) and angle 2 (95°) form a triangle with angle 3. The angle corresponding to angle 1 (by the parallel line property) is 63° . Then by triangle angle sum: angle 3 = $180 - 63 - 95 = 22^\circ$.
- 28) **Choice D is correct.** (8.G.A.2) Check: 108° (pentagon), 144° (decagon), 162° (20-gon) are all valid. For 130° : solving $\frac{(n-2) \times 180}{n} = 130$ gives $n \approx 12.86$, which is not a whole number.



Scan me!

For more practice
& answers

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 9 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

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**.