

10 Tennessee TCAP

GRADE
8
MATH

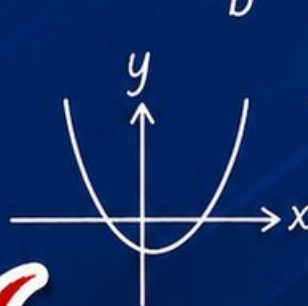
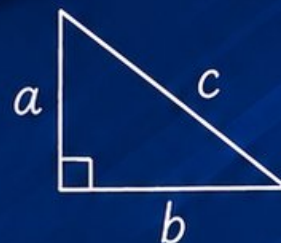
PRACTICE TESTS

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



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

$$y = mx + b$$

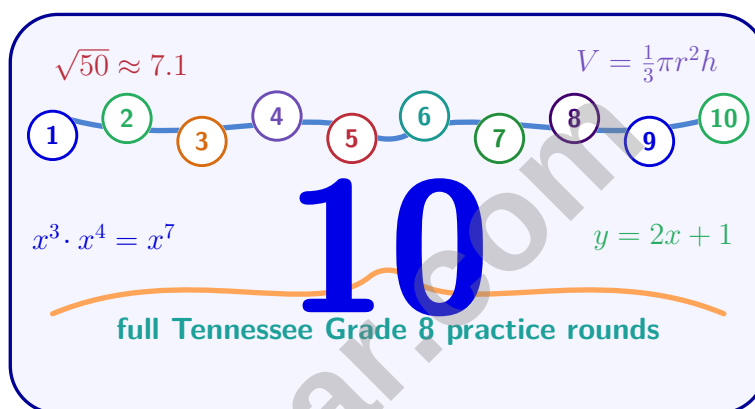


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Tennessee TCAP Grade 8 Math Practice Tests

Tennessee Grade 8 TCAP Practice for music-steady review for linear relationships, equations, real numbers, geometry, and data



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

Ten focused rounds for sharper Tennessee TCAP math thinking

This book gives you ten full Grade 8 TCAP 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 **Linear vs. Nonlinear Functions** (8.F.A.3): Interpret $y = mx + b$ as defining a linear function. Give examples of functions that are not linear. It also prepares you for **What Is a Function?** (8.F.A.1): Understand that a function is a rule that assigns to each input exactly one output.

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 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 **Rotations, Reflections, and Translations** (8.G.A.1): Verify experimentally the properties of rotations, reflections, and translations. Another recurring target is **Sketching and Describing Function Graphs** (8.F.B.5): Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits qualitative features described verbally.

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?

Ten Tennessee TCAP 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 Tennessee 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 **Similarity and Dilations** (8.G.A.1): Understand that a two-dimensional figure is similar to another if the second can be obtained by a sequence of rotations, reflections, translations, and dilations. The same routine helps with **Angles in Triangles and Parallel Lines** (8.G.A.2): Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about angles created when parallel lines are cut by a transversal, and the....



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& answers

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1) A data set has $MAD = 0$. What must be true about the data?

☐ A. All values are zero

☐ C. There is exactly one value

☐ B. The mean is zero

☐ D. All values are identical

2) A rectangular prism has a square base (length = width) and height equal to the side length of the base. If the surface area is 150 cm^2 , what is the side length of the square base?

☐ A. 3 cm

☐ C. 6 cm

☐ B. 5 cm

☐ D. 7 cm



3)

What is y when $x = 6$?

☐ A. 12

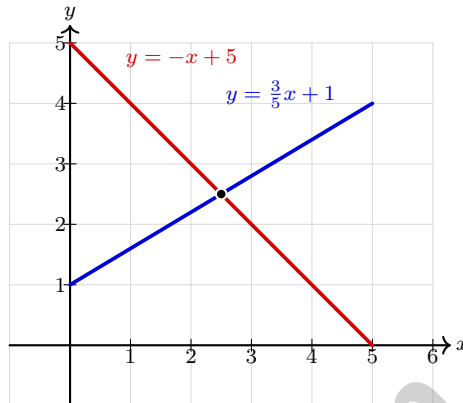
☐ C. 16

☐ B. 14

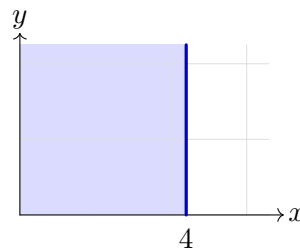
☐ D. 18



- 4) Look at the coordinate grid. Which system of equations has the solution shown by the intersection point?



- ☐ A. $y = \frac{3}{5}x + 1$ and $y = -x + 5$
☐ C. $y = \frac{3}{5}x - 1$ and $y = -x + 2$
- ☐ B. $y = \frac{3}{5}x$ and $y = x + 4$
☐ D. $y = \frac{3}{5}x + 2$ and $y = -x + 5$
- 5) Which phrase matches the inequality $5 - x > 10$?
- ☐ A. Five minus a number is greater than ten
 ☐ C. A number times five is greater than ten
- ☐ B. Five plus a number is greater than ten
 ☐ D. Five minus a number is at least ten
- 6) A student sees a graph with a SOLID vertical line at $x = 4$. The left side is shaded. What does this represent?



- ☐ A. $x < 4$
☐ C. $x > 4$
- ☐ B. $x \leq 4$
☐ D. $x \geq 4$



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7) Which of the following graphs represents a function?

☐ A. A vertical line.

☐ C. A point.

☐ B. A circle.

☐ D. An ellipse centered at the origin.

8) Which equation is NONLINEAR?

☐ A. $y = 100 - 5x$

☐ C. $y = \frac{1}{x^2}$

☐ B. $y = \frac{1}{4}x$

☐ D. $y = 8x$

9) What is $\sqrt{484}$?

10) A student is given the equation $y = 5x + 8$ and claims the slope is 8 and the y -intercept is 5. What is the student's error?

☐ A. The student reversed the slope and intercept.

☐ C. The student forgot to simplify the equation.

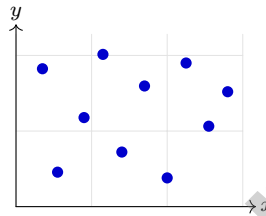
☐ B. The student added slope and intercept incorrectly.

☐ D. The student mixed up x and y values.



1) A student graphs $x \leq -1$ but draws a DASHED line instead of solid. What is the consequence?

- ☐ A. The boundary point $x = -1$ is excluded from the solution
- ☐ B. The boundary point $x = -1$ is still included
- ☐ C. The shading direction is flipped
- ☐ D. The inequality changes to $x > -1$



2)

A scatter plot shows no clear pattern or trend. Which line is the best fit?

- ☐ A. A line with the steepest possible slope
- ☐ B. A line that bounces between all the points randomly
- ☐ C. A vertical line
- ☐ D. A horizontal line near the mean of the y -values

3) A scale factor of 0.75 applied to a figure means the new figure is:

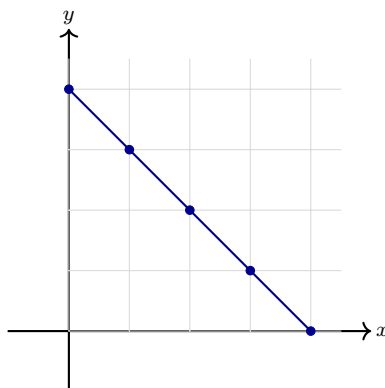
- ☐ A. Larger than the original
- ☐ B. 75% of the original size
- ☐ C. 25% of the original size
- ☐ D. 75% larger than the original

4) Two hikers start from the same point, walking in opposite directions. One walks at 4 mph, the other at 5 mph. After how many hours are they 27 miles apart?



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5) The graph shows function $r(x)$. What is $r(0)$?

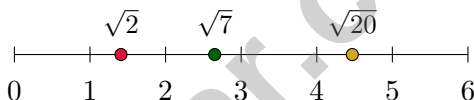

☐ A. 0

☐ C. 4

☐ B. 2

☐ D. 1

6)



How many of the marked numbers are irrational?

☐ A. None

☐ C. Two

☐ B. One

☐ D. All three

Algorithm for $0.2\overline{5}$

Step 1: $x = 0.2\overline{5}$

Step 2: $10x = 2.\overline{5}$, $100x = 25.\overline{5}$

Step 3: subtract the aligned equations

Step 4: solve for x

7)

What is $0.2\overline{5}$ as a fraction?

☐ A. $\frac{25}{100}$
☐ C. $\frac{2}{10}$
☐ B. $\frac{25}{90}$
☐ D. $\frac{23}{90}$


- 1) A savings account earns 2% simple interest annually. If you deposit \$6,000, how much will you have after 2 years?

☐ A. \$6,120 ☐ C. \$6,240
☐ B. \$6,180 ☐ D. \$6,300

- 2) Function f is given by $f(x) = 4x + 1$. Function g is given by the table: $g(0) = 2$, $g(1) = 5$, $g(2) = 8$. Which function has the greater rate of change?

x	0	1	2
$g(x)$	2	5	8

☐ A. $f(x)$ ☐ C. Both are equal
☐ B. $g(x)$ ☐ D. Cannot be determined

- 3) Simplify $(y^4)^3$.

☐ A. y^7 ☐ C. y^{-12}
☐ B. y^1 ☐ D. y^{12}

- 4) Two points on a line are $(-3, 2)$ and $(3, -4)$. What is the slope?

☐ A. -1 ☐ C. $-\frac{1}{6}$
☐ B. 1 ☐ D. 6

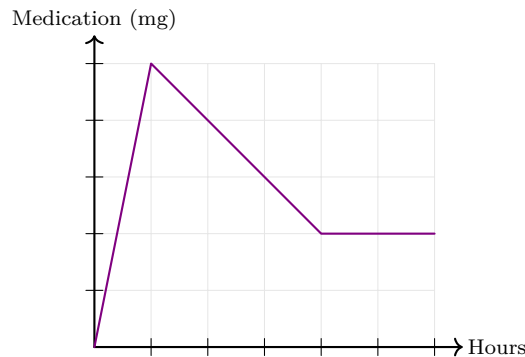
- 5) A recipe calls for 2 parts flour to 1 part sugar. If a baker uses 9 cups total of these two ingredients, how many cups of flour are needed?

☐ A. 3 cups ☐ C. 6 cups
☐ B. 4.5 cups ☐ D. 7 cups



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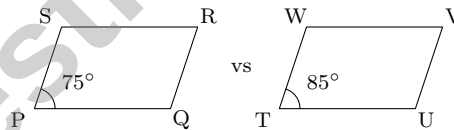
6)



A patient receives a medication injection. The dosage spikes immediately, then decreases as the body metabolizes it, and stabilizes at a baseline. Which interval shows the body absorbing the drug most rapidly?

- ☐ A. From 0 to 1 hour (absorption/rise) ☐ D. The rise and decay are equally rapid
☐ B. From 1 to 4 hours (decay)
☐ C. From 4 to 6 hours (plateau)

7) Quadrilateral PQRS is congruent to quadrilateral TUVW by a specific correspondence. If $\angle P = 75^\circ$ and $\angle T = 85^\circ$, what is the error in claiming that PQRS is congruent to TUVW?



- ☐ A. Congruent figures only need equal corresponding sides ☐ C. There is no error; angles can be different
☐ B. The correspondence is $P \leftrightarrow T$, but angles don't match ☐ D. The figures have different numbers of sides



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.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.G.B.5) If $MAD = 0$, every value must equal the mean exactly, which happens only when all values are the same.
- 2) **Choice B is correct.** (8.G.C.6) Let side length = s . Then $SA = 2(s^2 + s \cdot s + s \cdot s) = 2(s^2 + 2s^2) = 2(3s^2) = 6s^2 = 150$. So $s^2 = 25$, giving $s = 5$ cm.
- 3) **Choice C is correct.** (8.EE.B.5) Slope $k = \frac{8}{3}$. Equation: $y = \frac{8}{3}x$. At $x = 6$: $y = \frac{8}{3}(6) = 16$.
- 4) **Choice A is correct.** (8.EE.C.8) The graph shows the lines $y = \frac{3}{5}x + 1$ (blue) and $y = -x + 5$ (red) intersecting at $(2.5, 2.5)$.
- 5) **Choice A is correct.** (8.EE.C.9) The expression $5 - x$ means “five minus a number,” and > 10 means “is greater than ten.”
- 6) **Choice B is correct.** (8.EE.C.9) SOLID line means the boundary is INCLUDED ($\leq$ or $\geq$). Shading to the LEFT means x values are at most 4, so $x \leq 4$.
- 7) **Choice C is correct.** (8.F.A.1) A point has one x -value with one y -value, so it passes the vertical line test. A vertical line is not a function (fails VLT). Circles and ellipses fail the VLT.
- 8) **Choice C is correct.** (8.F.A.3) $y = \frac{1}{x^2}$ is a reciprocal function with x in the denominator, making it nonlinear. All others are linear.
- 9) **The correct answer is 22.** (8.EE.A.2) $22 \times 22 = 484$, so $\sqrt{484} = 22$.
- 10) **Choice A is correct.** (8.F.B.4) In $y = mx + b$, the slope is $m = 5$ and the y -intercept is $b = 8$. The student swapped them.
- 11) **Choice B is correct.** (8.G.A.2) From the diagram, quadrilateral ABCD (left) is congruent to EFGH (right) with vertices labeled in order: $A \rightarrow E$, $B \rightarrow F$, $C \rightarrow G$, $D \rightarrow H$. The tick marks on sides confirm this correspondence. Since congruent figures have equal corresponding angles, $\angle A = \angle E$, $\angle B = \angle F$, and so on.
- 12) **Choice A is correct.** (8.G.A.1) A dilation by scale factor k maps $(x, y) \rightarrow (kx, ky)$. With $k = \frac{1}{2}$: $(8, -6) \rightarrow (4, -3)$.
- 13) **Choice B is correct.** (8.G.A.2) By the exterior angle theorem, the exterior angle equals the sum of the two remote interior angles: $52 + 74 = 126^\circ$.
- 14) **Choice A is correct.** (8.G.B.3, 8.G.B.4) From $(\sqrt{5})^2 + (\sqrt{20})^2 = c^2$, we get $5 + 20 = 25$, so $c = \sqrt{25} = 5$.
- 15) **Choice A is correct.** (8.G.B.5) Since both points share $x = 6$, the distance is simply $|9 - 2| = 7$.
- 16) **Choice A is correct.** (8.G.B.4) Original: $V = \frac{1}{3}Bh$. New: $V' = \frac{1}{3}(2B) \times \frac{h}{2} = \frac{1}{3}Bh = V$. Volume is unchanged.
- 17) **Choice B is correct.** (8.G.B.4) Rectangle = $12 \times 6 = 72 \text{ ft}^2$. Each isosceles right triangle = $\frac{1}{2} \times 6 \times 6 = 18 \text{ ft}^2$. Two triangles = 36 ft^2 . Total = $72 + 36 = 108 \text{ ft}^2$.
- 18) **Choice C is correct.** (8.G.A.2) An exterior angle and its adjacent interior angle sum to 180° . For a regular hexagon with interior angle 120° , the exterior angle is $180 - 120 = 60^\circ$. Or: $\frac{360}{6} = 60^\circ$.
- 19) **Choice A is correct.** (8.SP.A) Joint relative frequency: $\frac{32}{240} \approx 0.133 \approx 13\%$. Cell count divided by grand total.
- 20) **Choice C is correct.** (8.EE.A.1) New side is s^2 , so new area is $(s^2)^2 = s^{2 \cdot 2} = s^4$.
- 21) **The correct answer is 1×10^6 .** (8.EE.A.4) Multiply coefficients: $2.5 \times 4 = 10$. Add exponents: $10^{3+2} = 10^5$. Result: $10 \times 10^5 = 1 \times 10^6$.
- 22) **The correct answer is A,C.** (8.SP.B.4) 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: $P(\text{not heads}) = \frac{1}{2}$.
- 23) **Choice A is correct.** (8.EE.C.9) FOIL: $(x + 2)(x + 3) = x^2 + 3x + 2x + 6 = x^2 + 5x + 6$. The student correctly applied FOIL.
- 24) **Choice B is correct.** (8.F.A.2) From verbal description, f has y -intercept 5. From table g , the y -intercept is 10. Since $10 > 5$, g is greater.
- 25) **The correct answer is $m = 25$.** (8.EE.C.7) Add 2 to both sides: $\frac{m}{5} = 5$. Multiply both sides by 5: $m = 25$. Verify: $\frac{25}{5} - 2 = 5 - 2 = 3 \checkmark$.
- 26) **Choice A is correct.** (8.F.B.5) Rising segment = increasing speed (acceleration). Flat = constant speed. Falling = decreasing speed (braking).



A Note for a Careful Thinker

Hi, Careful Thinker!

◇ This full-length book gave you ten complete Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. This book gave you room to practice the kind of thinking eighth graders need: modeling linear relationships, solving systems, connecting algebra and geometry, and interpreting data. ◇

★ **Remember this:** The goal was never just to finish pages. The goal was to become the kind of student who knows how to begin, how to adjust, and how to check. ★

Your Careful-Thinking Toolkit

- **Read Twice:** First for the story, second for the math.
- **Label Values:** Give each number a job.
- **Check Signs:** Negatives and inequalities deserve attention.
- **Use Evidence:** Let the work prove the answer.

Grade 8 test-day tip: On test day, underline the question before solving. It keeps your answer aimed at the right target.

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

Jay Daie

Your Math Practice Coach

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 | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Data Analysis |
| ✓ Inequalities | ✓ Measurement |
| ✓ Functions | ✓ Pythagorean Theorem |
| ✓ Geometry | ✓ Surface Area & Volume |
| ✓ Ratios & Proportions | ✓ 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