

# 9 Tennessee

# TCAP

GRADE 7

# MATH

## PRACTICE TESTS

Standards Aligned Problem Solving  
For Comprehensive Assessment Programs

Program



**9 PRINTED TESTS**



**2 ONLINE TESTS**



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



**BUILT FOR ACAP**  
Standards-Aligned



**STRENGTHEN  
SKILLS**



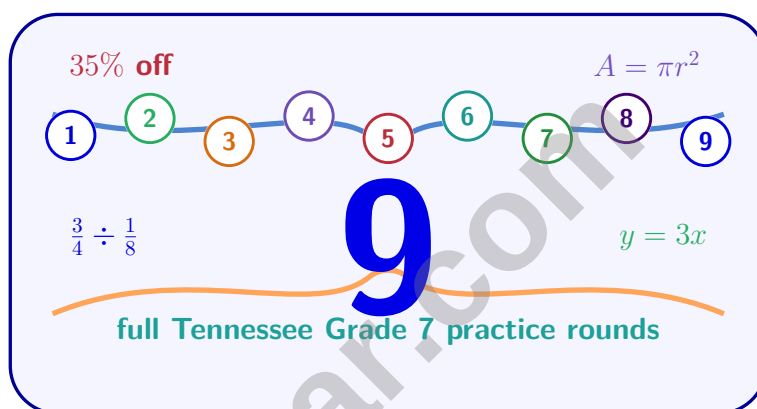
**SHARPEN  
THINKING**



**BE TEST-READY**  
Improve Performance

# 9 Tennessee TCAP Grade 7 Math Practice Tests

*Standards-Aligned Tennessee Practice for Proportional Reasoning, Expressions, Geometry, Statistics, and Probability*



Nine complete 40-question Grade 7 TCAP practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

**Jay Daie and Reza Nazari**



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# Welcome, Tennessee Grade 7 Problem Solver!

Nine focused rounds for sharper TCAP math thinking

This book gives you nine full Grade 7 TCAP math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, 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 7 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.

**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    | Proportional relationships, unit rates, percents, rational-number operations, and careful reading. |
| Tests 4–6    | Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving.    |
| Tests 7–9    | Statistics, probability, mixed review, stamina, and choosing efficient strategies.                 |
| Answer Pages | Compact keys and explanations that show why each answer works.                                     |

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



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- 1) If a student estimated 55 pages in a book and the percent error was 10%, how many pages did the book actually have?

- ☐ A. 61 pages ☐ C. 49.5 pages  
☐ B. 60 pages ☐ D. 50 pages

**Service Fee Comparison**

**Bank A: \$5 monthly + \$0.50 per  
withdrawal**

**Bank B: \$8 monthly, unlimited  
withdrawals**

2)

If a customer makes 10 withdrawals per month, which bank is cheaper?

- ☐ A. Bank A ☐ C. They cost the same  
☐ B. It depends on the withdrawal amount ☐ D. Bank B

- 3) A coin was flipped 1000 times as part of an experiment to test the law of large numbers. The results showed 495 heads and 505 tails. Which statement best explains this outcome?

- ☐ A. The coin is unfair because heads appeared fewer times. ☐ C. The coin should show exactly 500 heads and 500 tails.  
☐ B. With a large number of trials, the experimental probability approaches the theoretical probability. ☐ D. This result proves the coin is biased toward tails.



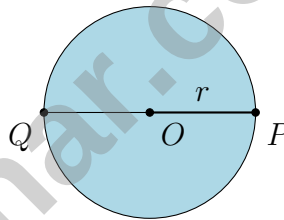


- 4) A rectangular prism has a volume of  $720 \text{ in}^3$ . The base is a square with side length 12 inches. What is the height?

☐ A. 5 in                      ☐ C. 12 in  
☐ B. 6 in                      ☐ D. 60 in

- 5) A spinner has 8 equal sections. If it is spun 240 times, approximately how many times would you expect one specific section to appear?

- 6) The diagram below shows a circle with center  $O$ .



Which line segment is the radius of the circle?

- ☐ A.  $OP$                       ☐ C.  $PQ$   
☐ B.  $OQ$                       ☐ D.  $QP$
- 7) A park's actual area is 400 square meters. If a scale model has linear dimensions that are  $\frac{1}{10}$  the actual, what is the area of the model?
- ☐ A. 40 square meters                      ☐ C. 3.6 square meters  
☐ B. 0.4 square meters                      ☐ D. 4 square meters



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8) A bookstore has 400 books. If 22% of them are fiction, how many fiction books are there?

☐ A. 66☐ C. 88☐ B. 78☐ D. 100

9) A punch recipe has a ratio of juice to water of 2 : 5. If you use 14 cups of juice, how many cups of water are needed?

10) In a sample of 140 workers, 35 work the night shift. The company employs 4200 people. How many workers are expected to work the night shift?

11) The table shows the relationship between pages read and time. Find the unit rate in pages per hour.

| Pages | $\frac{1}{2}$ | 1             | $1\frac{1}{2}$ |
|-------|---------------|---------------|----------------|
| Hours | $\frac{1}{6}$ | $\frac{1}{3}$ | $\frac{1}{2}$  |

☐ A.  $\frac{1}{12}$  pages per hour☐ C. 6 pages per hour☐ B.  $\frac{1}{3}$  pages per hour☐ D. 3 pages per hour

- 1) In a sign-rule table, the quotient  $(-) \div (+)$  should be marked as:

| Dividend | Divisor | Quotient |
|----------|---------|----------|
| $(-)$    | $(+)$   | ?        |

- ☐ A. Positive  $(+)$ 
☐ C. Zero  
☐ B. Negative  $(-)$ 
☐ D. Undefined
- 2) A machine produces  $\frac{2}{3}$  box of items in  $\frac{4}{9}$  hour. How many boxes per hour?
- ☐ A.  $\frac{8}{27}$  box/hr
 ☐ C.  $\frac{4}{6}$  box/hr  
☐ B.  $\frac{1}{6}$  box/hr
 ☐ D.  $\frac{3}{2}$  boxes/hr
- 3) The equation  $y = -2x$  describes a proportional relationship. Which point lies on the line?
- ☐ A.  $(-1, -2)$ 
☐ C.  $(0, 2)$   
☐ B.  $(2, 4)$ 
☐ D.  $(1, -2)$
- 4) What decimal is equivalent to  $\frac{3}{20}$ ?

- 5) The table shows the relationship between gallons of paint ( $g$ ) and square feet painted ( $p$ ).

| Gallons | Square Feet |
|---------|-------------|
| 1       | 400         |
| 2       | 800         |

What is the value of  $k$  in the equation  $p = kg$ ?

- ☐ A. 100
 ☐ C. 200  
☐ B. 800
 ☐ D. 400



6) Which statement is TRUE about the expression  $6ab + 3ba$ ?

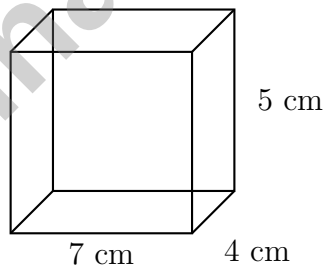
- ☐ A. They are not like terms because of different order.
- ☐ B. They simplify to  $9ab$ .
- ☐ C. Like terms must have variables in the same order.
- ☐ D. The terms cannot be combined.

7) Two fair dice are rolled as a simulation of a compound event. If “success” is rolling a sum of 7, which of the following correctly identifies all successful outcomes?

- ☐ A.  $(1, 7), (2, 7), (3, 7), (4, 7), (5, 7), (6, 7)$  — six outcomes
- ☐ B.  $(1, 6), (2, 5), (3, 4), (4, 3), (5, 2), (6, 1)$  — six outcomes
- ☐ C.  $(1, 6), (2, 5), (3, 4)$  — three outcomes
- ☐ D. Any roll where one die shows 7 — multiple outcomes

8) Factor:  $7p + 28$

- ☐ A.  $7(p + 4)$
- ☐ B.  $7p(1 + 4)$
- ☐ C.  $14(p + 2)$
- ☐ D.  $28(p + 1)$



9)

The diagram shows a rectangular prism with dimensions  $7\text{ cm} \times 5\text{ cm} \times 4\text{ cm}$ . What is the surface area?

- ☐ A.  $166\text{ cm}^2$
- ☐ B.  $140\text{ cm}^2$
- ☐ C.  $256\text{ cm}^2$
- ☐ D.  $384\text{ cm}^2$



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- 1) A cube has edge length 5 mm. What is its surface area?
- ☐ A.  $25 \text{ mm}^2$  ☐ C.  $125 \text{ mm}^2$   
☐ B.  $50 \text{ mm}^2$  ☐ D.  $150 \text{ mm}^2$
- 2) Solve:  $x + 7 < 12$
- ☐ A.  $x < 5$  ☐ C.  $x \leq 5$   
☐ B.  $x > 5$  ☐ D.  $x < 19$
- 3) A rectangular patio in a landscape design is 4 inches by 5 inches at scale 1 in : 3 ft. What is the perimeter of the actual patio in feet?
- ☐ A. 18 ft ☐ C. 54 ft  
☐ B. 27 ft ☐ D. 30 ft
- 4) A cone is cut by a vertical plane passing through its apex and intersecting the base circle. Which shape is formed?
- ☐ A. Right triangle ☐ C. Equilateral triangle  
☐ B. Isosceles triangle ☐ D. Scalene triangle
- 5) If an angle measures  $29^\circ$ , what is the measure of an angle supplementary to it?
- ☐ A.  $29^\circ$  ☐ C.  $151^\circ$   
☐ B.  $61^\circ$  ☐ D.  $209^\circ$
- 6) A triangle with vertices  $A(1, 1)$ ,  $B(4, 1)$ , and  $C(1, 4)$  is translated by vector  $(-1, 2)$ . What are the coordinates of the image of vertex A?
- ☐ A.  $(0, 3)$  ☐ C.  $(1, 1)$   
☐ B.  $(2, 3)$  ☐ D.  $(0, 1)$



7) If  $\frac{x}{6} = \frac{12}{8}$ , what is the value of  $x$ ?

☐ A. 4

☐ B. 8

☐ C. 9

☐ D. 16

8) What is  $\sqrt{25} + \sqrt{36}$ ?

9) A bike tire has diameter 24 inches. If the tire rotates 20 times, how far does the bike travel? Use  $\pi \approx \frac{22}{7}$ .

☐ A. About 1507 inches

☐ B. About 3014 inches

☐ C. About 753 inches

☐ D. About 6029 inches

10) A circular garden has a diameter of 20 feet. About how many square feet is the garden? Use  $\pi \approx 3.14$ .

☐ A.  $62.8 \text{ ft}^2$

☐ B.  $125.6 \text{ ft}^2$

☐ C.  $314 \text{ ft}^2$

☐ D.  $1256 \text{ ft}^2$

11) A recipe calls for  $2\frac{1}{2}$  cups of flour, written as  $(2 + 0.5)$  cups. A baker triples the recipe. Which expression best shows the distributive property being applied?

☐ A.  $3 \times 2.5 = 7.5$

☐ B.  $3(2 + 0.5)$

☐ C.  $3(2) + 3(0.5)$

☐ D. 7.5 cups total



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**Tennessee TCAP Grade 7 Practice Test Answer Keys****How to use this section with a Grade 7 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.** (7.RP.3) If  $\frac{|55 - \text{actual}|}{|\text{actual}|} \times 100\% = 10\%$ , then solving:  $|55 - \text{actual}| = 0.10 \times \text{actual}$ . Testing 50:  $\frac{|55 - 50|}{50} \times 100\% = 10\%$  ✓.
- 2) **Choice D is correct.** (7.RP.3) Bank A:  $5 + (0.50 \times 10) = 5 + 5 = \$10$ . Bank B: \$8. Bank B is cheaper at \$8.
- 3) **Choice B is correct.** (7.SP.6) The law of large numbers states that as the number of trials increases, the experimental probability converges toward the theoretical probability. Both 0.495 and 0.505 are very close to the theoretical 0.5, which is expected with 1000 trials.
- 4) **Choice A is correct.** (7.G.4-7.G.6) Base area =  $12^2 = 144 \text{ in}^2$ . Height =  $\frac{V}{B} = \frac{720}{144} = 5 \text{ in}$ .
- 5) **The correct answer is 30.** (7.SP.5-7.SP.8) Each section has theoretical probability  $\frac{1}{8}$ . Expected frequency:  $\frac{1}{8} \times 240 = 30$  times.
- 6) **Choice A is correct.** (7.G.4-7.G.6) The radius is any segment from the center to the circle.  $OP$  is labeled and is a radius.
- 7) **Choice D is correct.** (7.RP.1-7.RP.3) Linear scale of  $\frac{1}{10}$  means area scales by  $(\frac{1}{10})^2 = \frac{1}{100}$ . Model area =  $400 \div 100 = 4 \text{ m}^2$ .
- 8) **Choice C is correct.** (7.RP.3) 22% of 400 is  $0.22 \times 400 = 88$  books.
- 9) **The correct answer is 35.** (7.RP.1-7.RP.3) Ratio 2 : 5: if juice = 14, then  $\frac{2}{5} = \frac{14}{x}$ . Cross multiply:  $2x = 70$ , so  $x = 35$  cups water.
- 10) **The correct answer is 1050.** (7.SP.1-7.SP.4)  $\frac{35}{140} = \frac{x}{4200}$ . Reduce:  $\frac{1}{4} = \frac{x}{4200} \Rightarrow x = 1050$ .
- 11) **Choice D is correct.** (7.RP.1-7.RP.3) From the table,  $\frac{1}{2}$  page in  $\frac{1}{6}$  hour gives unit rate  $\frac{1/2}{1/6} = \frac{1}{2} \times 6 = 3$  pages per hour.
- 12) **Choice D is correct.** (7.RP.1-7.RP.3) Proportional relationships must pass through (0,0). This line starts at (0,2), so it is not proportional.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) Volume equals rate times time. At 6 liters per minute,  $V = 6t$ .
- 14) **Choice A is correct.** (7.EE.1-7.EE.2) Perimeter =  $2[(8x + 3) + (5x - 2)] = 2(13x + 1) = 26x + 2$ .
- 15) **Choice A is correct.** (7.EE.4b) Check:  $2(5) - 1 = 10 - 1 = 9$ , and  $9 > 7$  is true. So  $x = 5$  is indeed a solution.
- 16) **Choice A is correct.** (7.G.1-7.G.5) Reflection over the  $y$ -axis maps  $(x, y) \rightarrow (-x, y)$ . So  $(2, 2) \rightarrow (-2, 2)$ .
- 17) **Choice C is correct.** (7.G.1-7.G.5) The scale factor is  $\frac{20}{8} = 2.5$ . The shorter side is  $6 \times 2.5 = 15$  inches.
- 18) **Choice D is correct.** (7.RP.3) Using the proportion  $\frac{25}{100} = \frac{x}{200}$ : increase is  $x = 50$ . New price:  $200 + 50 = \$250$ .
- 19) **The correct answer is A,C.** (7.G.4-7.G.6) Large square:  $20 \times 20 = 400 \text{ m}^2$  (A). Small square:  $5 \times 5 = 25 \text{ m}^2$ . Remaining:  $400 - 25 = 375 \text{ m}^2$  (C). The cutout is  $\frac{25}{400} = \frac{1}{16}$  of the original area, not  $\frac{1}{20}$ .
- 20) **Choice A is correct.** (7.NS.1-7.NS.3) The arrow shows the distance between 7 and 3 is 4 units. This represents the subtraction  $7 - 3 = 4$ .
- 21) **Choice C is correct.** (7.NS.1-7.NS.3) Since  $50 < 75$ , we have  $\sqrt{50} < \sqrt{75}$ . Approximately  $\sqrt{50} \approx 7.07$  and  $\sqrt{75} \approx 8.66$ .
- 22) **The correct answer is 0.** (7.G.1-7.G.5) Compute  $81 + 144 - 225 = 0$ . This confirms the side lengths satisfy the Pythagorean relationship, forming a right triangle.
- 23) **Choice A is correct.** (7.NS.1-7.NS.3)  $4.06 \times 10^4 = 4.06 \times 10,000 = 40,600$ . Move decimal 4 places right.
- 24) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute the 4 and 3 to each term in the parentheses:  $4x - 8 + 3x + 3$ . Then combine like terms:  $(4x + 3x) + (-8 + 3) = 7x - 5$ . The simplified form shows the final equivalent expression.
- 25) **Choice C is correct.** (7.EE.4a) Each bag costs \$3 and yeast is \$2. Equation:  $3b + 2 = 17$ .
- 26) **Choice B is correct.** (7.EE.3-7.EE.4) Set up:  $8w + 15 = 63 \Rightarrow 8w = 48 \Rightarrow w = 6$ .
- 27) **Choice C is correct.** (7.G.1-7.G.5) Since  $\frac{1}{2}$  inch represents 1 foot, 1 inch is twice as long on the drawing. So 1 inch represents 2 feet.
- 28) **Choice A is correct.** (7.SP.5-7.SP.8) Red sector is  $180^\circ$  out of  $360^\circ$ :  $P(\text{red}) = \frac{180}{360} = \frac{1}{2}$ .



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## Hi, Confident Learner!

◇ This high-stamina book gave you nine substantial Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 7 math can feel big because it brings together rational numbers, expressions, equations, geometry, probability, and data. ◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

### Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

**Grade 7 test-day tip:** When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

If you want to share something or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com).

**Jay Daie**

Your Confidence Coach

# PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **9** full-length Math practice tests and **2** online tests to help Grade 7 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:

**9** Full-Length Printed Tests

**2** Online Practice Tests

 Detailed Answer Explanations



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

## WHAT YOU'LL GAIN



### Stronger Math Skills

Build a solid foundation through targeted practice and review.



### Better Problem Solving

Develop logical thinking and effective solution strategies.



### Deeper Understanding

Reinforce key concepts with clear explanations and meaningful practice.



### Test Confidence

Familiarize with test formats and improve accuracy and speed.



### Achieve Success

Build confidence and perform your best on test day.

## TOPICS COVERED

- ✓ Ratios & Proportions
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Percents & Decimals
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
- ✓ 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!



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