

# 4

COMPLETE

# Vermont VTCAP

Grade

# MATH

# 5

## PRACTICE TESTS

Standards-Based Test Prep with  
Mixed Review, Word Problems,  
and **Full Answer Key**



- ✓ **4 COMPLETE PRACTICE TESTS**  
Built to reflect the test format and rigor



- ✓ **COVERS ALL ESSENTIAL TOPICS**  
Numbers & Operations, Fractions, Decimals, Geometry, Measurement, Data & Probability, and more



- ✓ **STRENGTHEN SKILLS & CONFIDENCE**  
Mixed review, challenging questions, and strategic practice



- ✓ **FULL ANSWER KEY INCLUDED**  
Detailed explanations for every question



BUILD STRONG  
MATH SKILLS  
& TEST READINESS



IMPROVE ACCURACY,  
SPEED, AND  
PROBLEM SOLVING



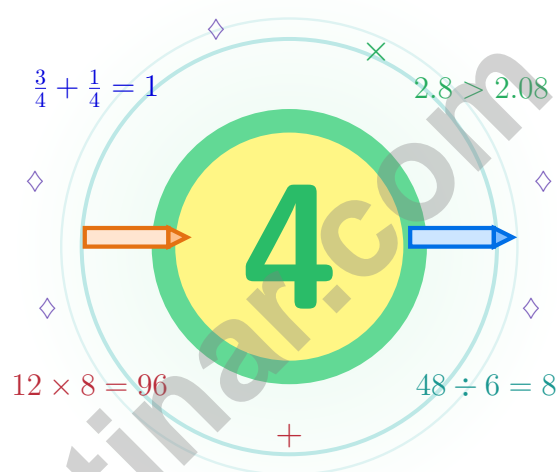
PERFECT FOR  
CLASSROOM,  
HOME, OR  
SELF-STUDY



ALIGNED TO  
VERMONT  
STATE STANDARDS  
(VTCAP)

# 4 Vermont VTCAP Grade 5 Math Practice Tests

*Four practice tests, four growth checks, one calm routine*



Four full tests, a smart quick review, mission-style strategy pages, and student-tested support that help Grade 5 mathematicians from The Green Mountain State build calm, careful, confident habits.

**Jay Daie and Reza Nazari**



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# Vermont Mathematicians, Step into Mission Control

A four-test adventure built for steady, brave thinking

## An Invitation to Grade 5 in Vermont

This book gives you four chances to read closely, solve carefully, and level up your math thinking. Math is like a Green Mountain trail – it climbs gently, rewards patience, and never asks you to sprint.

You do not need to feel perfect before you begin. You just need to stay curious, use strategies, and learn from every correction. That is how confident mathematicians are built.

### Read

Read every word and circle key numbers.

### Solve

Solve cleanly so your work tells a story.

### Reflect

Reflect on what worked and what wobbled.

**A strong mission habit for Vermont:** keep your work neat, estimate when it helps, label units carefully, and never let one hard question decide your mood for the whole page.

# A Simple Path Through Four Tests

A four-step routine that turns practice into real improvement

## Step 1: Notice

**Notice the structure: warm-up, test, review, repair.**

Wake up the big Grade 5 ideas before the test starts so your brain is already warmed up.

## Step 2: Practice

**Practice one full test in quiet conditions.**

Find a calm corner, settle in, and aim for careful, honest choices before quick ones.

## Step 3: Honest Check

**Check honestly without rushing.**

Circle missed questions, sort out what went sideways, and notice which skills are calling for attention.

## Step 4: Polish

**Polish the rough spots before test number two.**

Read the explanation, fix the work, and carry that lesson into the very next test.

## A Four-Week Vermont Mission Map

| Week   | Mission Focus  |
|--------|--|
| Week 1 | Take Test 1 like a maple-grove morning.                          |
| Week 2 | Take Test 2 and aim attention at word problems and step-showing. |
| Week 3 | Take Test 3 to polish fractions, decimals, and conversions.      |
| Week 4 | Take Test 4 with calm, careful focus.                            |



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## About These Four Tests

### What these four practice tests help Grade 5 students build

These three practice tests prepare Grade 5 students in the Green Mountain State for the Vermont VTCAP with the calm patience of a maple-grove morning. The goal is bigger than collecting right answers. Students are practicing how to read carefully, choose a strategy, solve step by step, and explain their reasoning clearly – the same way mathematicians do every day.

#### Selected-Response Questions

Students solve the problem and choose the best answer. Estimating first, crossing out weak choices, and checking for reasonableness can save time and points.

#### Constructed-Response Questions

Students show steps, explain a method, or support an answer with clear math. Strong reasoning matters because it shows how the answer was found.

#### Grade 5 Ideas That Show Up Again and Again

- place value, comparing numbers, and rounding
- multi-digit addition, subtraction, multiplication, and division
- fractions, mixed numbers, and decimals
- perimeter, area, volume, and measurement conversions
- tables, line plots, patterns, and coordinate points
- geometry and multi-step real-world problem solving

**What strong VTCAP-style work looks like:** accurate math, readable steps, the right labels or units, and a final answer that really matches the question being asked.



# Table of Contents

|  |       |    |
|--|-------|----|
| ★ Practice Test 1                      | _____ | 19 |
| ★ Practice Test 2                      | _____ | 33 |
| ★ Practice Test 3                      | _____ | 48 |
| ★ Practice Test 4                      | _____ | 64 |
| Practice Test Answer Keys              | _____ | 78 |
| Practice Test Answers and Explanations | _____ | 81 |

## Grade 5 Mathematics Reference Materials

### PERIMETER AND AREA

Perimeter of Rectangle  $P = 2l + 2w$  or  $P = 2(l + w)$

Area of Rectangle  $A = l \times w$

Area of Triangle  $A = \frac{1}{2} \times b \times h$

Volume of Rectangular Prism  $V = l \times w \times h$

### LENGTH

#### Customary

1 foot (ft) = 12 inches (in.)

1 yard (yd) = 3 feet (ft)

1 yard (yd) = 36 inches (in.)

#### Metric

1 meter (m) = 100 centimeters (cm)

1 centimeter (cm) = 10 millimeters (mm)

1 kilometer (km) = 1,000 meters (m)

### CAPACITY

#### Customary

1 cup (c) = 8 fluid ounces (fl oz)

1 pint (pt) = 2 cups (c)

1 quart (qt) = 2 pints (pt)

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#### Customary

1 pound (lb) = 16 ounces (oz)

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### TIME

1 minute (min) = 60 seconds (sec)    1 week = 7 days

1 hour (hr) = 60 minutes (min)    1 year = 12 months

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4) What is  $87.6 \div 100$ ?

A. 8.76

C. 876

B. 0.087

D. 0.876

5) Estimate:  $\frac{7}{8} - \frac{3}{9}$ .

A. 0

C. 1

B.  $1\frac{1}{2}$

D.  $\frac{1}{2}$

6) The figures below are labeled A-D. Which figure is a parallelogram but not a rectangle?



A



B



C



D

A. Figure A

C. Figure C

B. Figure B

D. Figure D

7) Subtract:  $3\frac{2}{9} - 1\frac{7}{9}$  (requires borrowing).

A.  $2\frac{2}{9}$

C.  $2\frac{1}{9}$

B.  $1\frac{5}{9}$

D.  $1\frac{4}{9}$

8) A teacher stacks 5 identical rectangular blocks. Each block is 4 inches by 3 inches by 2 inches. What is the total volume of the stack?

*Record your answer in the space provided.*



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- 1) A student solved  $7,500 \div 100$  and got 750. What error did they make?
- A. Divided by 10 instead of 100       C. Added a zero instead of removing one
- B. Moved the decimal point to the right       D. Did not move the decimal point at all instead of left
- 2) A small greenhouse model measures 12 meters long, 7 meters wide, and 2 meters tall. What is its volume?
- A. 84 cubic meters       C. 14 cubic meters
- B. 24 cubic meters       D. 168 cubic meters
- 3) A metric conversion: 1.5 meters = \_\_\_\_ centimeters. (There are 100 cm in 1 m, so multiply by 100.) Which is correct?
- A.  $1.5 \times 10 = 15$  cm       C.  $1.5 \times 1000 = 1500$  cm
- B.  $1.5 \div 100 = 0.015$  cm       D.  $1.5 \times 100 = 150$  cm
- 4) Without calculating, which product is NOT equal to 10?
- A.  $10 \times 1$        C.  $10 \times \frac{9}{10}$
- B.  $10 \times \frac{4}{4}$        D.  $20 \times \frac{1}{2}$
- 5) Find:  $1,176 \div 24$ .

*Record your answer in the space provided.*



## Grade 5 Mathematics Reference Materials

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1) Estimate:  $\frac{5}{6} + \frac{7}{9}$ .

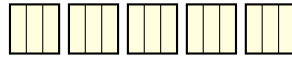
A. Less than 1

C. Between  $1\frac{1}{2}$  and 2

B. Between 1 and  $1\frac{1}{2}$

D. More than 2

2) A baker makes cookies using  $\frac{1}{3}$ -cup batches of butter. How many batches are used if she uses 5 cups of butter total?



1 cup 1 cup 1 cup 1 cup 1 cup

5 cups split into one-third-cup batches

A. 10

C. 15

B. 12

D. 20

3) Liam read  $\frac{2}{5}$  of a book on Monday and  $\frac{1}{3}$  on Tuesday. What fraction has he read in total?

*Record your answer in the space provided.*

4) Simplify then multiply:  $\frac{4}{10} \times \frac{5}{8}$ . What is the final answer in simplest form?

A.  $\frac{20}{80}$

C.  $\frac{1}{2}$

B.  $\frac{3}{8}$

D.  $\frac{1}{4}$

5) Round 34.196 to the nearest whole number.

A. 34

C. 34.2

B. 34.1

D. 35



## Practice Test Answer Keys

### How to use this section:

1. check your answer
2. circle missed questions
3. rework them before reading the explanation

**Good correction habits build strong scores.**

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## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** **(5.NF.B.7c)** Each dollar buys 5 one-fifth-dollar tokens.  $6 \div \frac{1}{5} = 6 \times 5 = 30$  tokens.
- 2) **The correct answer is 20 pages.** **(5.G.A.2)** The x-coordinate shows minutes, and the y-coordinate shows pages. So (10, 20) means 10 minutes and 20 pages.
- 3) **Choice D is correct.** **(5.NF.B.7c)** Each whole contains 2 pieces of size  $\frac{1}{2}$ . With 4 wholes, there are  $4 \times 2 = 8$  pieces.
- 4) **Choice D is correct.** **(5.NBT.A.2)** Dividing by 100 moves the decimal 2 places left:  $87.6 \rightarrow 8.76 \rightarrow 0.876$ .
- 5) **Choice D is correct.** **(5.NF.A.2)**  $\frac{7}{8} \approx 1$  and  $\frac{3}{9} = \frac{1}{3} \approx \frac{1}{2}$ . So  $\frac{7}{8} - \frac{3}{9} \approx 1 - \frac{1}{2} = \frac{1}{2}$ .
- 6) **Choice D is correct.** **(5.G.B.4)** Figure D is a rhombus with no right angles. It has two pairs of parallel sides, so it is a parallelogram, but it is not a rectangle.
- 7) **Choice D is correct.** **(5.NF.A.1)** Borrow 1 from 3:  $2\frac{11}{9} - 1\frac{7}{9} = 1\frac{4}{9}$ .
- 8) **The correct answer is 120 in<sup>3</sup>.** **(5.MD.C.5)** One block has volume  $4 \times 3 \times 2 = 24$  cubic inches. Five blocks have total volume  $24 \times 5 = 120$  cubic inches.
- 9) **The correct answer is 3.** **(5.G.A.2)** For nonzero terms,  $9 \div 3 = 3$ ,  $18 \div 6 = 3$ , and  $27 \div 9 = 3$ .
- 10) **Choice A is correct.** **(5.NBT.B.7)** Line up decimal points and subtract place by place.  $15.50 - 12.73 = 2.77$  cm decrease. This confirms the answer.
- 11) **Choice A is correct.** **(5.NBT.A.2)**  $25 \times 40$  makes 1,000, which ends with 3 zeros. The other products end with fewer zeros.
- 12) **Choice B is correct.** **(5.OA.A.1)** Multiplication and division come first:  $12 \times 5 = 60$  and  $10 \div 2 = 5$ . Then finish left to right:  $60 - 5 + 3 = 58$ .
- 13) **Choice D is correct.** **(5.NF.B.4)** Each row shows  $\frac{2}{5}$ . Three rows make  $3 \times \frac{2}{5} = \frac{6}{5}$ , which is one whole and one fifth more.
- 14) **Choice B is correct.** **(5.NF.B.5b)**  $2\frac{1}{4} = \frac{9}{4}$  and  $1\frac{1}{5} = \frac{6}{5}$ . Multiply:  $\frac{9}{4} \times \frac{6}{5} = \frac{54}{20} = 2\frac{14}{20} = 2\frac{7}{10}$  cups.
- 15) **Choice B is correct.** **(5.G.B.3)** By definition, a parallelogram has 2 pairs of parallel sides. This includes rectangles, rhombuses, and general parallelograms.
- 16) **Choice B is correct.** **(5.NBT.B.7)** Hundredths:  $5 + 8 = 13$  (regroup 1 tenth); tenths:  $7 + 6 + 1 = 14$  (regroup 1 one); ones:  $2 + 3 + 1 = 6$ . Sum is 6.43.
- 17) **Choice D is correct.** **(5.NF.B.5a)** Since  $\frac{3}{4} < 1$ , multiplying by it makes the result smaller than 5.
- 18) **Choice D is correct.** **(5.NBT.B.5)** Multiply:  $112 \times 7 = (100 \times 7) + (10 \times 7) + (2 \times 7) = 700 + 70 + 14 = 784$ .
- 19) **Choices A, B are correct.** **(5.G.B.4)** An equilateral triangle has three equal sides, and a right triangle has one 90° angle. C describes isosceles, and D contradicts obtuse.
- 20) **Choice C is correct.** **(5.OA.A.1)** Start inside the parentheses:  $2 + 3 = 5$ . Then the bracket becomes  $10 - 5 = 5$ , and  $3 \times 5 = 15$ .
- 21) **The correct answer is 1000.** **(5.NBT.A.2)**  $\frac{100,000}{100} = 1,000$ , which is  $10^3$ .
- 22) **Choice D is correct.** **(5.MD.A.1)** Since 1 pound = 16 ounces, multiply 6 by 16:  $6 \times 16 = 96$  ounces.
- 23) **Choice A is correct.** **(5.NF.A.2)**  $\frac{1}{3} = \frac{4}{12}$ ,  $\frac{1}{4} = \frac{3}{12}$ , and  $\frac{1}{6} = \frac{2}{12}$ . These are the correct denominator-12 forms.
- 24) **Choice D is correct.** **(5.NF.A.1)** LCM(5,2) = 10.  $\frac{4}{5} = \frac{8}{10}$  and  $\frac{1}{2} = \frac{5}{10}$ .  $\frac{8}{10} + \frac{5}{10} = \frac{13}{10} = 1\frac{3}{10}$ .
- 25) **Choice B is correct.** **(5.NF.B.4b)** The correct answer is  $\frac{2}{3} \times \frac{1}{4} = \frac{2}{12}$ , not  $\frac{2}{7}$ . The student added  $3 + 4 = 7$  instead of multiplying  $3 \times 4 = 12$ .
- 26) **Choice C is correct.** **(5.OA.A.2)** Difference:  $(14 - 5) = 9$ ; multiply by 8:  $8 \times 9 = 72$ .
- 27) **Choice C is correct.** **(5.NBT.A.3a)** 4.05 has a 0 in the tenths place and a 5 in the hundredths place, so it reads as "four and five hundredths".
- 28) **Choice B is correct.** **(5.G.B.4)** A square has 4 equal sides AND all right angles, making it both a rectangle and a rhombus. Equal sides do not exclude being a rectangle.
- 29) **Choice A is correct.** **(5.NF.A.2)** Same denominator:  $5 - 2 = 3$  parts remaining. Answer:  $\frac{3}{8}$ .
- 30) **Choice B is correct.** **(5.NBT.A.3b)** Both decimals have 4 tenths. Compare the hundredths: 6 hundredths is greater than 2 hundredths, so  $0.46 > 0.42$ .



### Case Closed: Success Ahead

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### Greetings, Math Detective!

◇ Outstanding investigation! You've cracked the code on 4 complete practice tests, examining every clue and solving every mathematical mystery like a brilliant detective! Each problem was a puzzle, and you methodically gathered evidence, analyzed patterns, and reached accurate conclusions. That analytical thinking you've developed will serve you well on test day and beyond! ◇

★ **Here's what master detectives know:** not every case solves itself immediately. Sometimes you need to examine the evidence from different angles, try various approaches, and remain persistent until you crack the code. You've practiced exactly that through these 4 tests! Your investigative skills have sharpened considerably, and you're ready to solve any mathematical mystery that comes your way! ★

#### Detective's Case File: Your Skills

- **Clue Collection:** You gather all important information from problems before solving!
- **Pattern Recognition:** You identify mathematical patterns like a trained investigator!
- **Evidence Analysis:** You evaluate which strategies work best for each problem type!
- **Case Resolution:** You stay focused until you've found the correct solution!

**Detective wisdom:** the best investigators take notes about their methods so they can solve similar cases faster in the future. Your brain has been doing exactly that throughout these 4 tests, storing successful strategies in your mental filing cabinet. On test day, you'll be able to retrieve those proven methods instantly!

If you want to share a proud moment or ask a question, please email me at [jay@testinar.com](mailto:jay@testinar.com). I'd love to hear from you!

**Jay Daie**

Your Math Detective Coach

# 4 COMPLETE TESTS. CONFIDENCE. SUCCESS.



Give your child the practice and confidence they need to excel in **Grade 5 Math**. This book includes **4 full-length** practice tests designed to build skills, improve test readiness, and help students reach their full potential.

## WHAT'S INSIDE:



### 4 COMPLETE PRACTICE TESTS

Full-length tests that reflect real test format and rigor.



### COVERS ALL GRADE 5 TOPICS

Numbers & Operations, Fractions, Decimals, Geometry, Measurement, Data & Probability, and more.



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Build problem-solving skills with mixed review questions and real-world word problems.



### DETAILED ANSWER KEY

Step-by-step explanations for every question to help students learn and improve.



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Practice consistently, reduce test anxiety, and achieve your best score!



**PRACTICE SMART. LEARN MORE. ACHIEVE YOUR BEST.**



**Strengthen**  
Math Skills



**Improve**  
Accuracy  
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**Master**  
Essential  
Concepts



**Boost**  
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