

9

Alaska

AK STAR

GRADE 5 MATHEMATICS PRACTICE TESTS

Full-Length Standards-Aligned Practice
for Strong Math Performance

$$A = l \times w$$

$$x^2 + 3x - 4 = 0$$

$$y = 2x + 1$$



$$2,345 \times 6 = 14,070$$



$$\frac{3}{4} + \frac{1}{8} = \frac{7}{8}$$

$$7.2 \div 0.8 = 9$$



$$(12 + 8) \div 4 = 5$$



Build Confidence



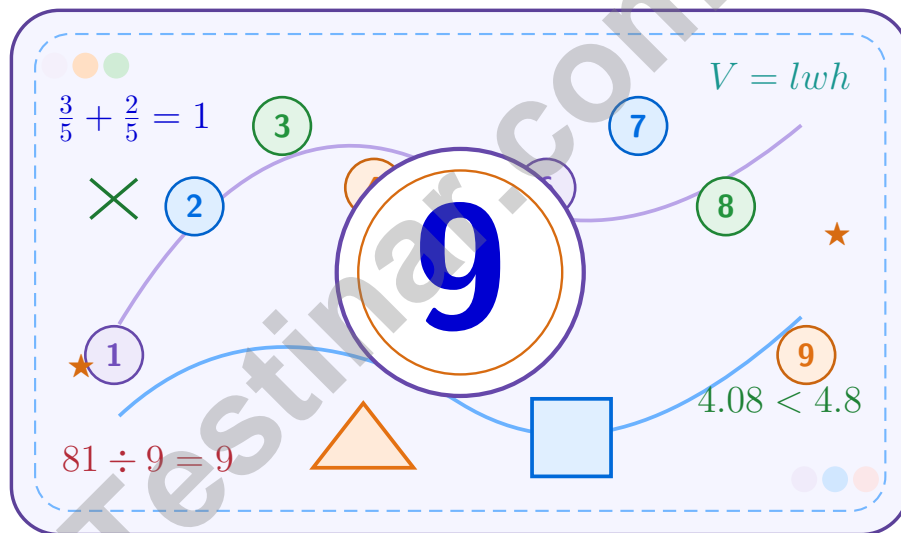
Improve Math Skills



Achieve Success

9 Alaska AK STAR Grade 5 Math Practice Tests

A nine-step confidence climb with clear review, smart strategy, and practice that gets stronger every round



Nine full tests, focused skill boosters, and student-friendly support from start to finish for Grade 5 mathematicians who want to climb higher.

Jay Daie and Reza Nazari



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Welcome to the Confidence Climb

This book is here to help you practice with purpose and rise step by step

To the Grade 5 Mathematician

This practice book is a place to think, try, fix, and grow. You do not have to be perfect on the first question or the first test. What matters most is careful effort, clear work, and learning from each round of practice.

Use these nine tests like stepping-stones. Take one test at a time, check your answers honestly, and notice which skills need more attention. Small improvements add up fast.

Try

Give each problem your best thinking.

Check

Study mistakes and learn what happened.

Rise

Bring that lesson into the next round.

A strong habit for every page: read carefully, estimate when it helps, show your steps, and keep going even when a question feels tricky. That is how steady math confidence is built.

How to Use This Book

A simple practice routine that turns nine tests into steady growth

A Nine-Session Climb Map

Session	Mission Focus
1	Take Test 1; review place value and operation slips.
2	Take Test 2; keep work neat and easy to read.
3	Take Test 3; give extra time to fractions and decimals.
4	Take Test 4; slow down on word problems and units.
5	Take Test 5; compare scores and habits with earlier rounds.
6	Take Test 6; notice which habits are now automatic.
7	Take Test 7; explain open-ended answers clearly.
8	Take Test 8; review topics that still need attention.
9	Take Test 9; finish with calm, careful, confident work.

Step 1: Warm Up

Start with the quick review.
Spend a few minutes refreshing the ideas before you start a test.

Step 2: Take the Test

Take one full practice test.
Work in a quiet space and let accuracy matter more than speed.

Step 3: Study the Pattern

Check your work honestly.
Circle missed questions and notice patterns in the mistakes.

Step 4: Learn, Then Retry

Read the explanation and try again.
Learning happens after the test too. Fixing mistakes is one of the smartest parts of practice.



Scan me

Test Overview

What this practice book helps students do

These practice tests are designed to help Grade 5 students get comfortable with the kind of thinking used on the Alaska AK STAR. The goal is bigger than only getting answers right. Students are practicing how to read closely, choose a strategy, solve carefully, and explain their work when needed.

Selected-Response Questions

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

Constructed-Response Questions

Students show their thinking, steps, models, or explanations. Even when unsure, writing what they know can help organize the problem.

Grade 5 Skills You Will Practice Often

- place value, comparing numbers, and rounding
- multi-digit addition, subtraction, multiplication, and division
- fractions, decimals, and mixed numbers
- perimeter, area, volume, and measurement conversions
- coordinate points, patterns, graphs, and tables
- geometry and multi-step word problems

What strong work looks like: the answer is correct, the steps are clear, the labels or units are included, and the final result makes sense.



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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)

1 gallon (gal) = 4 quarts (qt)

Metric

1 liter (L) = 1,000 milliliters (mL)

WEIGHT AND MASS

Customary

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TIME

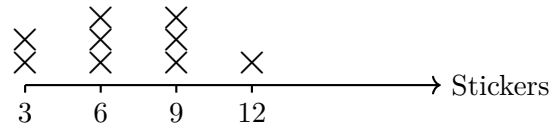
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1 hour (hr) = 60 minutes (min) 1 year = 12 months

1 day = 24 hours (hr) 1 year = 52 weeks



- 1) The line plot shows the number of campaign stickers collected by students in a class election:



How many students are represented in the line plot?

- A. 9 students C. 11 students
 B. 10 students D. 12 students
- 2) What is $\frac{1}{2} \div 3$?
- A. $\frac{3}{2}$ C. $\frac{2}{3}$
 B. $\frac{1}{6}$ D. $\frac{1}{3}$
- 3) Add using a place-value chart: $2.34 + 1.25 = ?$

Ones	Tenths	Hundredths
2	3	4
+1	+2	+5

- A. 3.49 C. 3.60
 B. 3.59 D. 4.49
- 4) Four boxes each measure $5 \text{ m} \times 3 \text{ m} \times 2 \text{ m}$. What is their total combined volume?
- A. 60 m^3 C. 120 m^3
 B. 90 m^3 D. 180 m^3



5) A bookstore has 4,500 copies of a book. They will ship them equally to 10 stores. How many books does each store receive?

A. 4.5

C. 450

B. 45

D. 45,000

6) A container holds $\frac{7}{8}$ liter of milk. If you use $\frac{1}{2}$ of the milk, how much do you use?

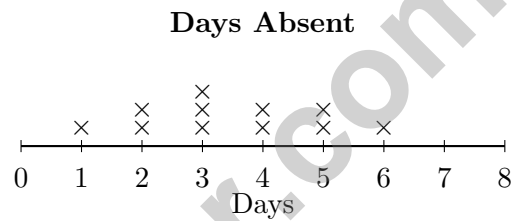
A. $\frac{7}{16}$ liter

C. $\frac{7}{10}$ liter

B. $\frac{1}{4}$ liter

D. $\frac{8}{10}$ liter

7) The line plot displays the number of days students were absent:



How many students were absent 3 days?

A. 2

C. 4

B. 3

D. 5



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1) What is $\frac{1}{8} \div 5$?



$\frac{1}{8}$ split into 5

- A. $\frac{5}{8}$
 B. $\frac{1}{40}$

- C. $\frac{1}{13}$
 D. $\frac{1}{3}$

2) Which rectangular prism has a volume less than 200 cubic inches?

Prism	Length	Width	Height
P	10	5	4
Q	8	6	4
R	9	5	5
S	7	6	5

- A. Prism P
 B. Prism Q

- C. Prism R
 D. Prism S



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1) When you multiply 7.2 by a number less than 1, what will be true about the product?

- A. The product is larger than 7.2 C. The product equals 7.2
 B. The product is smaller than 7.2 D. The product is negative

2) Look at the two quadrilaterals. Which property do they NOT share?



Square



Rectangle

- A. Four right angles C. All sides are congruent
 B. Two pairs of parallel sides D. Opposite sides are parallel
- 3) Multiply: $2\frac{1}{5} \times 1\frac{1}{4}$
- A. $2\frac{3}{4}$ C. 3
 B. $2\frac{11}{20}$ D. $2\frac{1}{5}$

4) Find: 42×10^6 .

Record your answer in the space provided.



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1) What is $35 \div 1,000$?

A. 0.35

C. 3,500


B. 0.035

D. 0.0035

2) The model shows 4 wholes, with each whole cut into pieces of size $\frac{1}{2}$. How many pieces of size $\frac{1}{2}$ are there in all?

1 whole 

1 whole 

1 whole 

1 whole 

4 wholes, each cut into pieces of size $\frac{1}{2}$

A. 6

C. 4

B. 2

D. 8

3) A student drew a triangle and said it was both right and obtuse. Is this possible?

A. Yes, always

C. No, never

B. Yes, sometimes

D. Cannot be determined

4) Write a fraction equivalent to $\frac{2}{5}$ with a denominator of 20.

Record your answer in the space provided.



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 Alaska scores.

Testinar.com



Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (5.MD.3) Each X mark represents one student. Count the marks: $2 + 3 + 3 + 1 = 9$ students.
- 2) **Choice B is correct.** (5.NF.7) $\frac{1}{2} \div 3 = \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$.
- 3) **Choice B is correct.** (5.NF.7) Add column by column: ones $2 + 1 = 3$; tenths $3 + 2 = 5$; hundredths $4 + 5 = 9$. Sum is 3.59.
- 4) **Choice C is correct.** (5.MD.6) One box: $5 \times 3 \times 2 = 30 \text{ m}^3$. Four boxes: $30 \times 4 = 120 \text{ m}^3$.
- 5) **Choice C is correct.** (5.MD.6) Dividing by a power of 10 shifts the value to a smaller place. $4,500 \div 10 = 450$ books per store. This confirms the answer.
- 6) **Choice A is correct.** (5.NBT.2) $\frac{1}{2} \times \frac{7}{8} = \frac{7}{16}$ liter.
- 7) **Choice B is correct.** (5.NF.6) Count the X marks above 3. There are 3 X marks, so 3 students were absent exactly 3 days.
- 8) **Choice A is correct.** (5.G.4) A rhombus is a parallelogram because both pairs of opposite sides are parallel.
- 9) **Choice A is correct.** (5.OA.3) The number of tomatoes is always 4 times the number of carrots: $3 \times 4 = 12$, $6 \times 4 = 24$, $9 \times 4 = 36$, $12 \times 4 = 48$.
- 10) **Choice C is correct.** (5.NBT.2) Multiplying by 100 moves the decimal two places right: $0.7 \rightarrow 7 \rightarrow 70$.
- 11) **Choice C is correct.** (5.OA.1) Start with the part in parentheses: $4 + 5 = 9$. Now multiply the result by 2: $9 \times 2 = 18$. Nice careful grouping gives answer C.
- 12) **Choice B is correct.** (5.OA.1) Move the decimal 1 place left: $7.2 \div 10 = 0.72$.
- 13) **Choice A is correct.** (5.NBT.2) Find each part first: Prism A is $6 \times 2 \times 2 = 24$ cubic centimeters, and Prism B is $3 \times 3 \times 1 = 9$ cubic centimeters. Because the parts do not overlap, add them: $24 + 9 = 33$ cubic centimeters.
- 14) **The correct answer is (4, 1).** (5.G.2) Start with (0, 0). After one step, A is 4 and B is 1, giving (4, 1).
- 15) **Choice D is correct.** (5.G.2) Looking up the table, only the Square row has check marks in BOTH "All sides equal" and "90° angles". A quadrilateral, parallelogram, and rectangle don't all guarantee equal sides; only the square does. So the most specific name is Square.
- 16) **Choice A is correct.** (5.NF.1) Rearrange: $? = 1\frac{1}{4} - \frac{3}{8} = \frac{5}{4} - \frac{3}{8} = \frac{10}{8} - \frac{3}{8} = \frac{7}{8}$.
- 17) **Choice C is correct.** (5.NF.1) $9\frac{3}{4} - 4\frac{2}{4} = 5\frac{1}{4}$ gal.
- 18) **Choice D is correct.** (5.NF.1) A half-mile is $\frac{1}{2}$ mile, and each mile has 2 half-mile laps. $6 \div \frac{1}{2} = 12$ laps.
- 19) **Choice D is correct.** (5.NF.6) Compare the tenths place first: 0.25 has 2 tenths and 0.52 has 5 tenths. Since $5 > 2$, we know $0.52 > 0.25$.
- 20) **Choices A, B are correct.** (5.NBT.7) A and B are larger than $\frac{4}{5}$ because multiplying by factors greater than 1 enlarges the starting amount. C and D use factors less than 1, so those products are smaller.
- 21) **Choice B is correct.** (5.NF.1) Add whole parts: $2 + 1 = 3$. Add fractions: $\frac{1}{3} + \frac{2}{3} = 1$. Total: $3 + 1 = 4$.
- 22) **Choice D is correct.** (5.G.4) A right triangle with all three sides of different lengths is a right scalene triangle.
- 23) **Choice C is correct.** (5.G.4) Prism 1: $2 \times 3 \times 5 = 30$ cu. in. Prism 2: $1 \times 6 \times 5 = 30$ cu. in.
- 24) **The correct answer is 120 in³.** (5.MD.7) One block has volume $4 \times 3 \times 2 = 24$ cubic inches. Five blocks have total volume $24 \times 5 = 120$ cubic inches.
- 25) **Choice D is correct.** (5.MD.7) Area = $\frac{5}{6} \times \frac{3}{5} = \frac{15}{30} = \frac{1}{2}$ square mile.
- 26) **Choice D is correct.** (5.NBT.2) $36 \times 10^6 = 36 \times 1000000 = 36000000$ units.
- 27) **Choice C is correct.** (5.NBT.2) The y -values increase by 2: 6, 8, 10, 12. When $x = 4$, $y = 12$.
- 28) **Choice D is correct.** (5.MD.2) Toy cars: $12 \times 3.2 = 38.4$ kg. Toy trucks: $8 \times 4.5 = 36$ kg. Total: $38.4 + 36 = 74.4$ kg.
- 29) **Choice B is correct.** (5.G.2) Days are on the x -axis (10) and dollars spent are on the y -axis (50). So \$50 was spent in 10 days.
- 30) **Choice D is correct.** (5.NF.7) $2 \div \frac{1}{4} = 2 \times 4 = 8$. She can make 8 loaves.
- 31) **Choice B is correct.** (5.NF.2) $3\frac{2}{7} \approx 3$ and $1\frac{1}{8} \approx 1$. So $3\frac{2}{7} + 1\frac{1}{8} \approx 3 + 1 = 4$.



Star Player Pep Talk

To My Star Math Player,

◇ 9 practice tests. Every one of them was a chance to grow, and every one of them you took. That's why your math game is at a new level today. ◇

★ **Star players know:** confidence comes from preparation. You can't fake confidence. You build it. You built yours through these 9 tests. So when test day shows up, your confidence will be real, because your work was real. ★

Star Player Stats

- **Practice Hours:** OFF THE CHARTS!
- **Skill Range:** BROAD! You can handle different problem types.
- **Mental Toughness:** HIGH! You don't quit on hard problems.
- **Game-Day Plan:** READY! You know your strategies.

Star tip: the best players don't try to be perfect on every play. They focus on the next play. Do that on the test. One problem at a time. One small win at a time. You add them up to a great score.

If you'd like to share your experience or have questions, please email me at reza@testinar.com. I'd love to hear from you!

Reza Nazari & Jay Daie

Your Math Coaches (Go Star!)

PRACTICE MORE. ACHIEVE MORE.

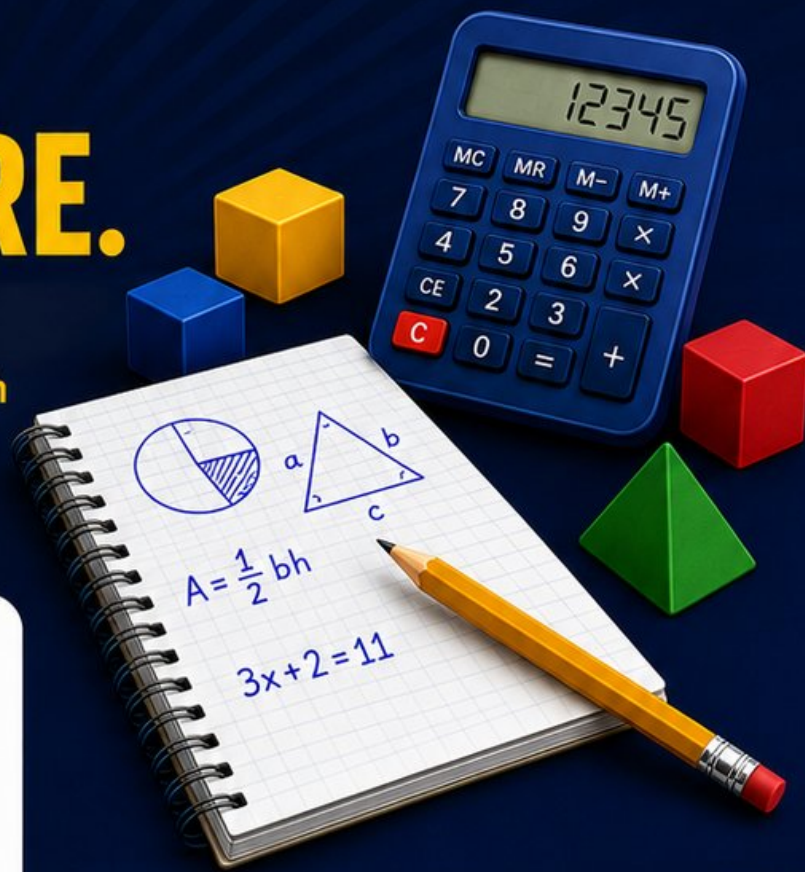
Give your child the edge they need to excel in **Grade 5 Math!** This book includes **9 full-length** practice tests designed to build confidence, sharpen skills, and improve test performance.

9

**FULL-LENGTH
PRACTICE
TESTS**

- ✓ Realistic.
- ✓ Rigorous.
- ✓ Results-Driven.

More practice today for a **stronger** tomorrow.



THIS BOOK HELPS YOUR CHILD:



Build Confidence

Familiar, focused practice reduces anxiety and boosts self-belief.



Strengthen Skills

Reinforces key math concepts through high-quality, standards-aligned questions.



Improve Test Readiness

Full-length tests help students understand test format, pacing, and question types.



Track Progress

Identify strengths and target areas with purposeful practice.



Achieve Success

Better preparation leads to higher scores and bright futures.

COVERS ALL ESSENTIAL TOPICS

- ✓ Whole Numbers & Operations
- ✓ Fractions & Decimals
- ✓ Algebraic Thinking
- ✓ Geometry
- ✓ Measurement & Data
- ✓ Graphing & Data Analysis
- ✓ Number Patterns
- ✓ Word Problems
- ✓ Ratio & Proportion
- ✓ Perimeter, Area & Volume
- ✓ And More!



Visit testinar.com/math5

for more Grade 5 math resources and practice materials!



Aligned to Standards



Created by Educators



Trusted by Parents & Teachers