

6

Alaska AK STAR

GRADE 5 MATH

PRACTICE TESTS

Complete Standards-Based Practice
— for Grade 5 Math Success —



**6 FULL-LENGTH
PRACTICE TESTS**

Realistic style questions



**STANDARDS-BASED
PRACTICE**

Covers all Grade 5
Math standards



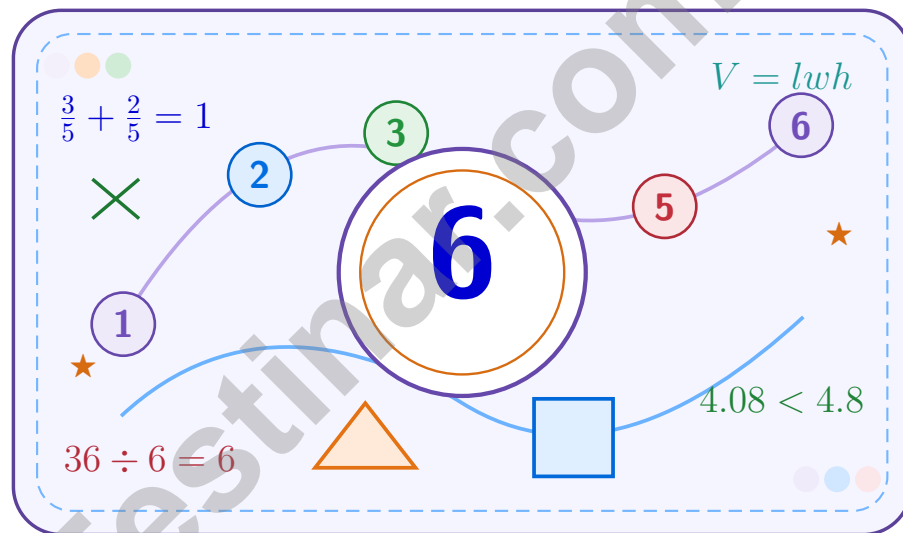
**BUILD CONFIDENCE.
IMPROVE SCORES.**

Target weak areas and
achieve success

★ STRONG PRACTICE. BRIGHT FUTURE. ★

6 Alaska AK STAR Grade 5 Math Practice Tests

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



Six full tests, a focused skill booster, 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 six 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 six tests into steady growth

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.

A Six-Week Climb Map

Week	Mission Focus
Week 1	Take Test 1 and review any place-value or operation slips.
Week 2	Take Test 2 and focus on showing neat, easy-to-read work.
Week 3	Take Test 3 and give extra time to fractions or decimals if needed.
Week 4	Take Test 4 and slow down on word problems and units.
Week 5	Take Test 5 and compare your score and habits with earlier rounds.
Week 6	Take Test 6 and finish with calm, careful, confident work that uses everything you practiced before.



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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.



Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	30
★ Practice Test 3	_____	47
★ Practice Test 4	_____	62
★ Practice Test 5	_____	77
★ Practice Test 6	_____	92
Practice Test Answer Keys	_____	106
Practice Test Answers and Explanations	_____	110

Grade 5 Mathematics

1

Questions: 40 Duration: No time limit

Calculator Policy: Calculators are not allowed



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

1 pound (lb) = 16 ounces (oz)

Metric

1 kilogram (kg) = 1,000 grams (g)

1 gram (g) = 1,000 milligrams (mg)

TIME

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

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

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



- 1) Compare the relationship between place values. Which of the following is *true*?
- A. Each place value is $\frac{1}{100}$ of the place to its left.
- B. Ones is 10 times the tenths place.
- C. Hundredths is 100 times the thousandths place.
- D. Tenths is $\frac{1}{10}$ of the hundredths place.
- 2) A rectangular box has base area 60 in^2 and volume 300 in^3 . What is the height?
- A. 4 in
- B. 5 in
- C. 6 in
- D. 7 in
- 3) Multiply: $1\frac{1}{4} \times 1\frac{3}{5}$
- A. 3
- B. $2\frac{1}{20}$
- C. $1\frac{15}{20}$
- D. 2



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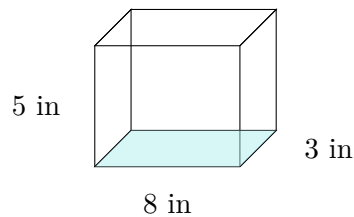
- 1) Five wholes are divided into pieces of size $\frac{1}{3}$. Which equation finds how many one-third pieces there are?

A. $\frac{1}{3} \div 5 = n$

B. $5 \times \frac{1}{3} = n$

C. $5 + \frac{1}{3} = n$

D. $5 \div \frac{1}{3} = n$



2)

Base area = 24 in^2 . Volume = ?

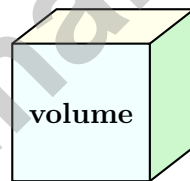
A. 192 in^3

B. 24 in^3

C. 120 in^3

D. 120 in^2

- 3) Which statement correctly identifies what cubic units measure?



cubic units

 A. The perimeter of a solid

 B. The surface of the object

 C. The distance around the base

 D. The amount of space inside a 3D solid

- 4) Which expression is greater: $50 \div (5 + 5)$ or $(50 \div 5) + 5$?

A. $50 \div (5 + 5)$

B. $(50 \div 5) + 5$

 C. The expressions are equal.

 D. Cannot be determined.


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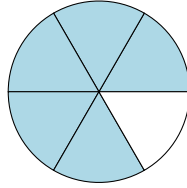
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- 1) Circle divided into 6 parts, 5 shaded (blue). Remove $\frac{1}{6}$.

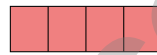


What is $\frac{5}{6} - \frac{1}{6}$?

- A. $\frac{4}{6} = \frac{2}{3}$
 B. $\frac{5}{6}$

- C. $\frac{6}{6}$
 D. $\frac{1}{6}$

- 2) A ribbon is $\frac{1}{5}$ meter long. It is cut into 4 equal pieces. How long is each piece?

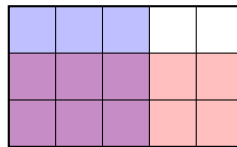


$\frac{1}{5}$ m

- A. $\frac{1}{20}$ meter
 B. $\frac{4}{5}$ meter

- C. $\frac{1}{1}$ meter
 D. $\frac{1}{9}$ meter

- 3) Use the area model below to find $\frac{2}{3} \times \frac{3}{5}$.



Record your answer in the space provided.



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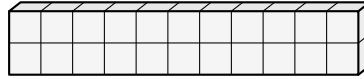
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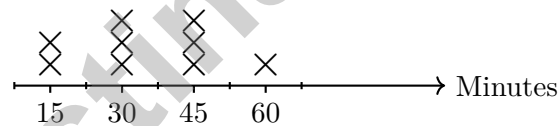
1 day = 24 hours (hr) 1 year = 52 weeks



- 1) A rectangular prism has dimensions 11 units by 1 unit by 2 units. How many unit cubes does it contain?



- A. 22 unit cubes C. 14 unit cubes
 B. 11 unit cubes D. 24 unit cubes
- 2) A school fundraiser sold candy bars. $\frac{15}{20}$ were chocolate. What is this in simplest form?
- A. $\frac{3}{4}$ C. $\frac{5}{6}$
 B. $\frac{3}{5}$ D. $\frac{2}{3}$
- 3) A water bottle is $\frac{3}{4}$ full. After drinking $\frac{1}{6}$ of the full bottle, how much water is left?
- A. $\frac{4}{12}$ C. $\frac{9}{12}$
 B. $\frac{2}{4}$ D. $\frac{7}{12}$
- 4) The line plot shows minutes spent on homework by students:



Marks are at 15-minute intervals. Find the total minutes.

- A. 300 minutes C. 330 minutes
 B. 450 minutes D. 315 minutes



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

- Choice B is correct.** **(5.NBT.1)** In the decimal system, each place is 10 times the place to its right. So ones (1) = $10 \times$ tenths (0.1).
- Choice B is correct.** **(5.MD.7)** The base area is 60 square inches. Since $300 \div 60 = 5$, the height is 5 inches.
- Choice D is correct.** **(5.NF.4)** $1\frac{1}{4} = \frac{5}{4}$ and $1\frac{3}{5} = \frac{8}{5}$. Multiply: $\frac{5}{4} \times \frac{8}{5} = \frac{40}{20} = 2$.
- Choice B is correct.** **(5.G.1)** The y-coordinate is 6. Half of 6 is 3, so the x-coordinate is 3. The ordered pair is (3, 6).
- Choice B is correct.** **(5.NF.2)** Find common denominator: $\frac{1}{3} = \frac{4}{12}$ and $\frac{1}{4} = \frac{3}{12}$. So $\frac{4}{12} + \frac{3}{12} = \frac{7}{12}$ mile.
- Choice C is correct.** **(5.G.2)** The base \overline{AB} lies on $y = 3$. Point C is at $y = 7$, so it is $7 - 3 = 4$ units above the base.
- Choice A is correct.** **(5.G.3)** A pentagon is a polygon with 5 straight sides and 5 vertices. A quadrilateral has 4 sides, and a rectangle is a type of quadrilateral.
- Choice C is correct.** **(5.MD.6)** The base is $14 \times 10 = 140$ square feet. With a height of 8 feet, the volume is $140 \times 8 = 1,120$ cubic feet.
- Choice C is correct.** **(5.NBT.2)** Multiplying by 1,000 means multiplying by 10^3 , so the decimal moves three places right. That makes statement C true.
- Choice A is correct.** **(5.NBT.2)** Use the fact $4 \times 6 = 24$. The factors 4,000 and 60 bring four zeros total, so the product is 240,000.
- Choice B is correct.** **(5.OA.2)** The parentheses tell us that $6 - 2$ is one grouped amount: “the difference of 6 and 2.” Then 8 is multiplied by that difference.
- Choice B is correct.** **(5.NF.1)** Common denominator is 10: $1\frac{5}{10} + 4\frac{2}{10} = 5\frac{7}{10}$.
- Choice C is correct.** **(5.NF.5)** $30 \times \frac{3}{5} = 18$ marbles. Since $\frac{3}{5} < 1$, the result is smaller than 30.
- The correct answer is $\frac{1}{24}$.** **(5.NF.6)** $\frac{1}{4} \div 6 = \frac{1}{24}$ acre. Each plant gets one of 24 equal parts of an acre.
- The correct answer is 47 cm.** **(5.MD.3)** Add the heights shown by the marks: $6 + 3(6\frac{1}{2}) + 2(7) + 7\frac{1}{2} = 47$ centimeters.
- Choice B is correct.** **(5.NF.2)** $3\frac{11}{12} \approx 4$ and $4\frac{1}{11} \approx 4$. So $3\frac{11}{12} + 4\frac{1}{11} \approx 4 + 4 = 8$.
- Choice C is correct.** **(5.G.4)** All three angles (89° , 45° , 46°) are less than 90 degrees, making this an acute triangle. Since all side lengths are different, it is scalene.
- Choices A, B are correct.** **(5.NBT.2)** $10^3 = 1,000 = 10 \cdot 10 \cdot 10$. C uses addition, and D equals 10,000.
- The correct answer is 12.** **(5.NF.4)** You can multiply first: $\frac{4}{5} \times 15 = \frac{60}{5} = 12$. You can also think of $\frac{1}{5}$ of 15 as 3, so $\frac{4}{5}$ of 15 is 4 groups of 3, or 12.
- The correct answer is 114 in³.** **(5.MD.5)** Add the three non-overlapping volumes: $54 + 36 + 24 = 114$ cubic inches. Each cubic inch is counted once.
- Choice C is correct.** **(5.NF.4)** $\frac{4}{5} \times \frac{1}{3} = \frac{4}{15}$ (multiply numerators and denominators).
- Choice A is correct.** **(5.NBT.3)** In 0.68, the 6 is in the tenths place (0.1) and the 8 is in the hundredths place (0.01): $6 \times 0.1 + 8 \times 0.01 = 0.68$.
- Choice D is correct.** **(5.MD.1)** Convert one yard first: 1 yard = 3 feet, and 3 feet = 36 inches. So $2 \times 36 = 72$ inches.
- Choice D is correct.** **(5.NF.6)** The unit fraction is the amount being shared, so divide $\frac{1}{10}$ by 5. The equation is $\frac{1}{10} \div 5 = n$.
- Choice C is correct.** **(5.NF.2)** Use tenths: $\frac{4}{5} = \frac{8}{10}$ and $\frac{1}{2} = \frac{5}{10}$. Then $\frac{8}{10} - \frac{5}{10} = \frac{3}{10}$.
- Choice D is correct.** **(5.NBT.2)** Dividing by 100 moves the decimal 2 places left: $4.5 \rightarrow 0.45 \rightarrow 0.045$.
- Choice A is correct.** **(5.OA.3)** Rule: multiply by 3. Terms: 4, 12, 36, 108, 324, 972.
- Choice D is correct.** **(5.G.2)** Pairs are (4,2), (7,4), (10,6), (13,8). The point (13,9) does not belong; it should be (13,8).
- Choice D is correct.** **(5.NF.1)** $5\frac{2}{5} = \frac{27}{5}$ and $2\frac{3}{5} = \frac{13}{5}$. Subtracting: $\frac{27}{5} - \frac{13}{5} = \frac{14}{5}$.
- Choice B is correct.** **(5.NBT.2)** $0.19 \times 100 = 19$ (decimal moves 2 places right).



Authors' Notes

Conductor's Final Rehearsal Notes

Greetings, Master Conductor!

★ Brilliant performance! You've conducted six complete mathematical symphonies, orchestrating solutions with precision and harmony like a world-class conductor! Each problem required you to coordinate multiple mathematical elements, maintain tempo, and create elegant solutions. Your mathematical musicianship has developed beautifully through this intensive rehearsal period! ★

◇ **Here's what great conductors know:** they don't just read the notes; they understand the entire composition and how every part connects. You've developed that same comprehensive understanding through these six tests! You see how mathematical concepts relate to each other and how to bring them together into coherent solutions. That's mathematical mastery! ◇

Orchestra Performance Review

- **Rhythm and Timing:** You pace yourself effectively through tests without rushing!
- **Harmony:** You balance different problem-solving methods beautifully!
- **Technical Mastery:** You execute mathematical procedures with confidence!
- **Performance Ready:** You're prepared for opening night on test day!

Remember this musical wisdom: the best performances happen when musicians stop thinking about technique and simply play from the heart. After six complete rehearsals, your mathematical techniques have become second nature. On test day, trust your preparation and let your knowledge flow naturally. You're ready for a standing ovation!

Want to share your mathematical compositions or discuss a particularly elegant solution? Send your musical insights to reza@testinar.com. I appreciate mathematical artistry!

Reza Nazari & Jay Daie

Your Math Coaches for Staying Focused

6 FULL-LENGTH TESTS. ENDLESS POTENTIAL.

PRACTICE TODAY. SUCCEED TOMORROW.

Give your child the tools they need to build strong math skills and test-taking confidence! This book includes **6 full-length practice tests** along with standards-based practice, mixed review, word problems, and a complete answer key.

★★★
PRACTICE
WITH PURPOSE.
ACHIEVE WITH
CONFIDENCE.

WHAT'S INSIDE:



6 FULL-LENGTH PRACTICE TESTS

Realistic tests designed to reflect the actual test format and help build confidence.



STANDARDS-BASED PRACTICE

Covers all essential Grade 5 math standards with clear explanations and examples.



MIXED REVIEW

Reinforces key concepts with a variety of question types and review exercises.



WORD PROBLEMS

Build critical thinking and problem-solving skills with real-world scenarios.



COMPLETE ANSWER KEY

Step-by-step explanations for every question to support learning and growth.



IMPROVE. PRACTICE. ACHIEVE.

Consistent practice leads to stronger skills, higher scores, and greater success.



WHY PRACTICE MAKES A DIFFERENCE



BUILD CONFIDENCE

Feel prepared and ready for any challenge.



IMPROVE ACCURACY

Strengthen skills and reduce careless mistakes.



THINK STRATEGICALLY

Develop problem-solving skills and deepen understanding.



MANAGE TIME

Practice under timed conditions to build stamina.



STAY MOTIVATED

Track progress and celebrate every win.



ACHIEVE SUCCESS

Reach goals and unlock your full potential!



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Smart Practice. Stronger Results.