Alaska AK STAR

GRADE 6 MATH

6 PRACTICE TESTS

Standards-Aligned Steady Southern Problem Solving for Comprehensive Assessment Program

BUILD SKILLS. GAIN CONFIDENCE. SUCCEED!

6 PRINTED TESTS
Realistic practice to build confidence and mastery

2 ONLINE TESTS
Extra practice for continued success

DETAILED ANSWER EXPLANATIONS
Learn with step-by-step solutions

FOCUSED & EFFECTIVE
Target key math skills with purposeful practice

6 PRINTED TESTS +2 ONLINE TESTS

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

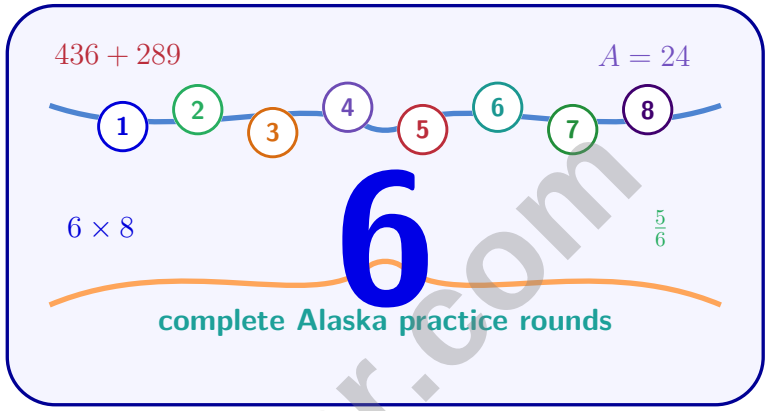
PRACTICE
Sharpen skills with targeted practice tests

REVIEW
Understand concepts and strengthen skills

SUCCEED
Build confidence and achieve your best

6 Alaska AK STAR Grade 6 Math Practice Tests

Standards-Aligned Calm Explorer Thinking for Alaska System of Academic Readiness



Six complete 40-question Grade 6 practice rounds for AK STAR, built for calm explorer thinking with ratios, rational numbers, expressions, equations, geometry, statistics, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari

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Welcome, Alaska Math Explorer!

Eight focused rounds using calm explorer thinking

This book gives you six full Grade 6 practice tests for AK STAR. Each round uses glacier paths, northern lights, and wide-open trails as a fresh mental backdrop while you read closely, choose a smart strategy, show your work, and check whether your answer makes sense.

Your Alaska Practice Promise

Move from clue to clue like a marked route: notice the question, choose the tool, and verify the answer.

How to Use This Book

A six-session routine for calm explorer thinking

1. **Work in order.** Take one 40-question test at a time in a quiet place.
2. **Preview the skills.** Scan the quick review pages before beginning the first round.
3. **Correct actively.** Retry missed items before reading the full explanation.
4. **Mark confidence.** Put a small star beside problems where your plan felt strong.
5. **Plan the next round.** Use the growth log to choose one habit and one skill to practice.

Alaska review rhythm: Work one round, review the trail of mistakes, and return with a sharper map for the next test.

What Is Inside?

Eight AK STAR tests, 320 questions, and a full review path

Part	What You Will Practice
Tests 1–2	Foundation rounds for ratios, rational numbers, operations, and careful reading.
Tests 3–5	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Test 6	Final stamina round for mixed review, neat work, and flexible strategy choices.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Calm explorer thinking means recognizing the skill even when the next question changes topic, changes format, or asks for an explanation.

Table of Contents

1) A dataset's five-number summary is: min $= 8$, $Q_1 = 16$, median $= 22$, $Q_3 = 28$, max $= 40$. If a single new data value of 45 is added, which statistic would change the MOST?

☐ A. The median
☐ B. Q_1
☐ C. The IQR
☐ D. The maximum

2) A team scores s points in the first half and 18 points in the second half. Which expression shows the total points scored?

☐ A. $s - 18$
☐ B. $18 - s$
☐ C. $s + 18$
☐ D. $18s$

3) Solve for x: $\frac{x}{6} = 5$

☐ A. $x = 1.2$
☐ B. $x = 11$
☐ C. $x = 30$
☐ D. $x = 0.83$

4) A golfer is 12 strokes under par. Which representation shows the integer score?

☐ A. $|-12|$ representing the magnitude of the score
☐ B. -12 representing 12 strokes under
☐ C. 12 representing 12 strokes under
☐ D. $|12|$ representing 12 strokes over

5) A student calculated the distance between $(3, -2)$ and $(7, -2)$ and got $3 - 7 = -4$ units. What error did the student make?

☐ A. The student forgot to use absolute value
☐ B. The student subtracted the y-coordinates instead of the x-coordinates
☐ C. The student used the wrong formula
☐ D. The student identified the wrong pair of points

6) A hiker starts at elevation 1,200 feet and climbs to 1,850 feet. What is the change in elevation?

☐ A. 650 feet
☐ B. −650 feet
☐ C. 3,050 feet
☐ D. 1,200 feet

7) The temperature drops by 4° each hour for 3 hours. What is the total change in temperature?

☐ A. 12°
☐ B. −12°
☐ C. 7°
☐ D. −7°

8) In a football game, a team gained 12 yards on one play and lost 8 yards on the next play. What was the net yardage change?

☐ A. 4 yards
☐ B. −4 yards
☐ C. −20 yards
☐ D. 20 yards

9)

Step 1: Exponent
$4^2 = 16$

Step 2: Multiply
$16 \times 2 = 32$

Step 3: Add
$5 + 32 = 37$

Which correctly describes the first step in evaluating $5 + 4^2 \times 2$?

☐ A. Add 5 and 4.
☐ B. Multiply 5×2.
☐ C. Multiply 4×2.
☐ D. Evaluate $4^2 = 16$.

10) Write an expression for "the quotient of 3 times a number n and 4".

☐ A. $\frac{3n}{4}$
☐ B. $3 \cdot \frac{n}{4}$
☐ C. $\frac{3}{4n}$
☐ D. $\frac{4}{3n}$

11) A student looks at the expression $6 + 4j$ and says the coefficient is 6. Is this correct?

☐ A. Yes, 6 is the coefficient.
☐ B. No, 6 is a constant; the coefficient of j is 4.
☐ C. No, 6 is the variable.
☐ D. No, coefficients cannot appear in expressions with constants.

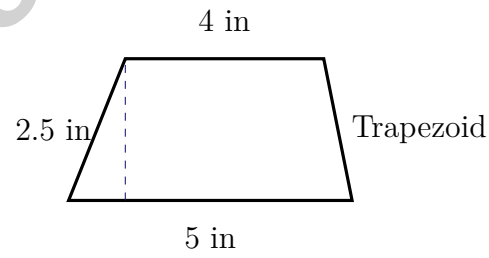
12) A test score must be at least 70 to pass. Which value does NOT pass?

☐ A. 69
☐ B. 75
☐ C. 70
☐ D. 80

13) Which statement about the graph is TRUE?

☐ A. The number 2 is a solution
☐ B. The number 1 is a solution
☐ C. The number 3 is a solution
☐ D. The number 0 is a solution

14)



Which measurement is the height of the trapezoid?

☐ A. 4 in
☐ B. 5 in
☐ C. 2.5 in
☐ D. 9 in

1) Which pair of dimensions would give a triangle an area of 48 cm^2?

☐ A. Base 6 cm, height 10 cm
☐ B. Base 8 cm, height 12 cm
☐ C. Base 10 cm, height 9 cm
☐ D. Base 16 cm, height 5 cm

2) A dot plot shows the data: • • •• at 5, •• at 7, and • at 11. What is the range?

☐ A. 4
☐ B. 5
☐ C. 7
☐ D. 6

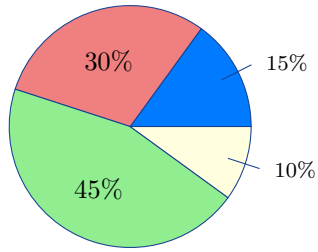
3) Which fraction best represents an event that is **very likely** to occur?

☐ A. $\frac{1}{10}$
☐ B. $\frac{2}{5}$
☐ C. $\frac{4}{5}$
☐ D. $\frac{1}{20}$

4) To make "How old am I?" statistical, should the question ask about one person or a group?

5) Using the push-ups data from Question 11, what is the median number of push-ups?

☐ A. 34 push-ups
☐ B. 35 push-ups
☐ C. 36 push-ups
☐ D. 37 push-ups



6)

A circle graph with 600 total items has sections of 15%, 30%, 45%, and 10%. Which is the second-largest section by count?

☐ A. The 30% section with 180 items.
☐ B. The 15% section with 90 items.
☐ C. The 10% section with 60 items.
☐ D. The 45% and 30% sections equally.

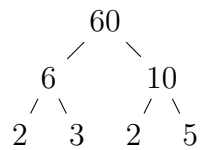
7) A class collected data on rainfall (in inches) for each day of the week. Which display would BEST show if certain days had significantly more or less rain than others?

☐ A. Pie chart divided by day
☐ B. Line graph connecting consecutive days
☐ C. Dot plot of individual measurements
☐ D. Bar graph with one bar per day

8) Express 25% as a fraction in simplest form.

☐ A. $\frac{1}{4}$
☐ B. $\frac{25}{100}$
☐ C. $\frac{1}{25}$
☐ D. $\frac{25}{75}$

9) Using a factor tree, the prime factorization of 60 is:



☐ A. $2^2 \times 3 \times 5$
☐ B. $2 \times 3 \times 5$
☐ C. $2 \times 3 \times 10$
☐ D. $2^3 \times 3$

Product: $2 \times 4 \times n = 8n$

Original factors: 2, 4, n

Simplified: coefficient is 8

1)

In the expression $8n$, what are all the factors?

☐ A. 8 only
☐ B. n only
☐ C. 8 and n
☐ D. 2, 4, and n

2) A jacket costs \$80 after a 20% discount. What was the original price?

☐ A. \$96
☐ B. \$160
☐ C. \$120
☐ D. \$100

3)

Row	Ratio	Equivalent
A	4 : 12	?
B	6 : 18	2 : 6
C	3 : 9	1 : 3
D	8 : 24	2 : 6

What is the missing equivalent ratio for Row A?

☐ A. 1 : 3
☐ B. 2 : 6
☐ C. 2 : 4
☐ D. 3 : 6

4) What is $\frac{3}{6}$ as a percent?

☐ A. 30%
☐ B. 36%
☐ C. 50%
☐ D. 60%

5) Marcus ran 1.5 miles. How many feet did Marcus run? (Use 1 mile = 5280 feet.)

☐ A. 3,540 feet
☐ B. 7,920 feet
☐ C. 5,280 feet
☐ D. 10,560 feet

6) Which is a multiple of both 4 and 6?

☐ A. 8
☐ B. 12
☐ C. 18
☐ D. 10

7) A triangular flag has an area of 36 in^2 and a height of 9 inches. What is its base?

☐ A. 4 in
☐ B. 8 in
☐ C. 18 in
☐ D. 27 in

8) A recipe for trail mix uses almonds, raisins, and chocolate chips in a 4 : 3 : 5 ratio. If the mix contains 12 ounces of almonds, how many ounces of raisins and chocolate chips combined are in the mix?

☐ A. 12 oz
☐ B. 18 oz
☐ C. 20 oz
☐ D. 24 oz

9) A water fountain fills 54 cups in 9 minutes. What is the rate in cups per minute?

☐ A. 5 cups per minute
☐ B. 63 cups per minute
☐ C. 45 cups per minute
☐ D. 6 cups per minute

Alaska AK STAR Practice Test Answer Keys

How to use this Alaska AK STAR answer section with a Grade 6 student:

1. check the answer first, then write one quick reason the choice is correct
2. mark questions to try again, especially the skills that feel connected to calm explorer thinking
3. rework the problem before reading the full explanation, using this reminder: Move from clue to clue like a marked route: notice the question, choose the tool, and verify the answer.

A calm Alaska correction routine turns every missed item into useful practice. Work one round, review the trail of mistakes, and return with a sharper map for the next test.

Alaska Practice Test Answers and Explanations

Review the six printed AK STAR tests with careful, observant, and ready for a bigger trail habits.

Practice Test 1 Answers and Explanations

1) **Choice D is correct.** 6.RP.1 Adding a value of 45 (larger than the current max of 40) directly changes the maximum from 40 to 45. The other quartiles and median are determined by position and would not change with one additional data point.
2) **Choice C is correct.** 6.EE.6 Total points = first half plus second half = $s + 18$.
3) **Choice C is correct.** 6.EE.5 Multiply both sides by 6: $x = 5 \times 6 = 30$.
4) **Choice B is correct.** 6.SP.4 The integer score is -12 because under par is represented with a negative number. Its absolute value, $|-12| = 12$, gives the magnitude only.
5) **Choice A is correct.** 6.NS.8 Correct: $|3-7| = |-4| = 4$ units. Distance is always positive; must use absolute value.
6) **Choice A is correct.** 6.EE.1 Change in elevation: $1{,}850 - 1{,}200 = 650$ feet.
7) **Choice B is correct.** 6.NS.3 A drop of 4° repeated 3 times: $(-4) \times 3 = -12°$.
8) **Choice A is correct.** 6.EE.7 Net change is gain plus loss: $12 + (-8) = 4$ yards gained.
9) **Choice D is correct.** 6.EE.1 PEMDAS requires exponents before multiplication. The diagram shows the first step is evaluating $4^2 = 16$. Then multiply: $16 \times 2 = 32$. Finally add: $5 + 32 = 37$.
10) **Choice A is correct.** 6.EE.3 "Three times a number n" is $3n$. "The quotient of $3n$ and 4" means divide $3n$ by 4: $\frac{3n}{4}$.
11) **Choice B is correct.** 6.EE.4 The constant 6 stands alone. The coefficient of the variable j is the number multiplied by j, which is 4.
12) **Choice A is correct.** 6.EE.8 A score ≥ 70 includes 70 and above. Since $69 < 70$, it fails to meet the requirement.
13) **Choice C is correct.** 6.EE.8 The open circle at 2 and arrow pointing right represent $x > 2$. Only 3 (from the choices) satisfies $x > 2$.
14) **Choice C is correct.** 6.G.1 The height is the perpendicular distance between the two parallel bases, shown by the dashed line, which is 2.5 in.
15) **Choice C is correct.** 6.NS.1 $V = 6 \times 5 \times 0.8 = 30 \times 0.8 = 24$ cm^3.
16) **Choice C is correct.** 6.G.3 Side length $= 8 - 2 = 6$ units. Area $= 6 \times 6 = 36$ square units.
17) **Choice D is correct.** 6.G.1 Width: $10 - 3 = 7$ units. Height: $8 - 2 = 6$ units. Area $= 7 \times 6 = 42$ square units.
18) **The correct answer is** $15+30$ **and** $5(9) = 45$**.** 6.NS.4 $5(3+6) = 5 \cdot 3 + 5 \cdot 6 = 15 + 30 = 45$. Also, $5(3+6) = 5(9) = 45$. Thus Choices A and C are correct. Choice B gives 21, Choice D gives 19, and Choice E gives 54.
19) **Choice A is correct.** 6.NS.8 Reflection over the y-axis: $T(-5, -3) \to T'(5, -3)$. Distance between them: $5 - (-5) = 10$ units.
20) **Choice A is correct.** 6.SP.2 Range = max − min $= 14 - 2 = 12$. IQR $= Q3 - Q1 = 10 - 4.5 = 5.5$.
21) **Choice C is correct.** 6.SP.5 Range = highest − lowest. $30 = 95 -$ lowest, so lowest $= 95 - 30 = 65$.
22) **Choice B is correct.** 6.SP.6 Multiples of 10 from 1 to 100: $10, 20, 30, \ldots, 100$ (10 numbers). Probability $= \frac{10}{100} = \frac{1}{10}$.
23) **Choice B is correct.** 6.SP.4 In order: $71, 75, 76, 78, 79, 81, 82, 83$. The 4th value is 78.
24) **Choice A is correct.** 6.NS.1 35% of 360° is $0.35 \times 360° = 126°$.
25) **The correct answer is 30.** 6.EE.3 $5(x + 6) = 5x + 30$, so the constant term is 30.
26) **The correct answer is 15.** 6.EE.9 The cost increases by \$30 for every 2 hours. So the rate is $\frac{\$30}{2 \text{ hours}} = \$15$ per hour. Check: 2 h at \$15/h costs \$30; 4 h costs \$60; 6 h costs \$90.
27) **The correct answer is 24.** 6.G.1 Solving: $84 = \frac{1}{2} \times b \times 7 \Rightarrow b = 24$ m.
28) **Choice A is correct.** 6.RP.3 Bar graphs excel at comparing values across categories (sports in this case). Line graphs show trends over time; circle graphs show parts of a whole; box plots display quartiles.

Hi, Math Pilot!

◇ 6 flights done in your math airplane. You have flown through smooth skies and bumpy clouds. You are a real pilot now. ◇

⋆ **Pilots know:** a good check before takeoff makes a smooth flight. Before each problem, do your check: read, plan, solve, verify. ⋆

Pilot Skills

- **Pre-Flight:** You read the question carefully.
- **Steering:** You pick the right strategy.
- **Smooth Flight:** You stay calm in long tests.
- **Landing:** You always check your final answer.

Pilot tip: on test day, take off one problem at a time. Trust your training. You earned your wings!

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

Jay Daie

Your Math Pilot

PRACTICE TODAY. SUCCEED TOMORROW!

This Grade 6 Math Practice Tests book is designed to help students strengthen their math skills, master important concepts, and build the confidence they need to excel on comprehensive assessments.

With 6 full-length printed tests and 2 online tests, students get the review, practice, and realistic test experience they need to improve accuracy, develop problem-solving abilities, and reach their full potential.

Perfect for classroom use, homework, test preparation, and extra practice at home.

6 PRINTED TESTS

+

2 ONLINE TESTS

PERFECT FOR:

- Classroom Practice
- Homework & Review
- Independent Learning
- Test Preparation
- Skill Reinforcement
- Building Confidence

BUILD SKILLS. GAIN CONFIDENCE. SUCCEED!

WHAT STUDENTS WILL 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 aligned with standards through meaningful practice.

Test Confidence
Become familiar with test formats and improve accuracy and speed.

Achieve Success
Build confidence and perform your best on test day.

TOPICS COVERED

- Ratios & Rates
- The Number System
- Expressions & Equations
- Geometry
- Fractions & Decimals
- Percents
- Statistics & Probability
- Data Analysis
- Measurement & Conversions
- And More!

2 ONLINE TESTS
Extra online practice to reinforce learning and build confidence.

MORE PRACTICE. GREATER RESULTS.

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

6 FULL-LENGTH PRINTED TESTS

2 ONLINE PRACTICE TESTS

DETAILED ANSWER EXPLANATIONS