Alaska AK STAR

GRADE 6 MATH PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

5 PRINTED TESTS

- Full-Length Practice Tests
- Realistic Questions
- Answer Key & Explanations

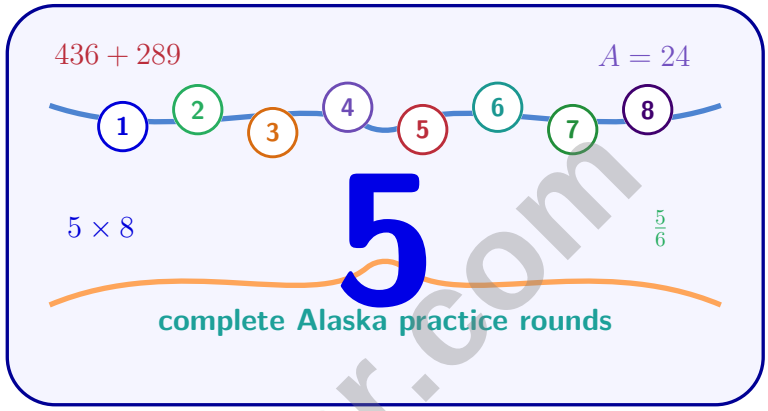
+ 2 ONLINE TESTS

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

PREPARE • PRACTICE • SUCCEED

5 Alaska AK STAR Grade 6 Math Practice Tests

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



Five 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 five 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 five-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 3–4	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Test 5	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) Find the value of $3(a+b)-2$ when $a=2$ and $b=3$.

☐ A. 10
☐ B. 17
☐ C. 15
☐ D. 13

2) Fuel consumption: A car travels $\frac{3}{5}$ mile on $\frac{1}{6}$ gallon of gas. How many miles does it travel on 1 gallon?

☐ A. $\frac{3}{30}$ miles
☐ B. $\frac{5}{18}$ mile
☐ C. $3\frac{3}{5}$ miles
☐ D. $1\frac{4}{5}$ miles

3) Write 0.15 as a percent.

4) A car travels at a constant speed. The table shows equivalent distances and times:

Distance (miles)	Time (hours)
60	1
120	2
?	3

☐ A. 160
☐ B. 180
☐ C. 200
☐ D. 220

5) Write 19% as a decimal.

☐ A. 0.019
☐ B. 19.0
☐ C. 1.9
☐ D. 0.19

6) A water fountain dispenses 8 ounces of water per second. Which statement describes a proportional relationship between water dispensed and time?

☐ A. After 0 seconds, 8 ounces have been dispensed
☐ B. After 5 seconds, 40 ounces have been dispensed
☐ C. The graph passes through $(0, 8)$
☐ D. After 5 seconds, 48 ounces have been dispensed

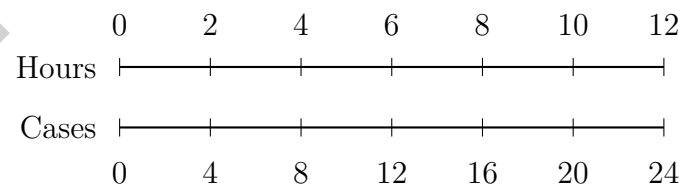
7) A store sells pens at a ratio of red to blue of 7 : 5. If there are 35 red pens, how many blue pens are there?

☐ A. 30 pens
☐ B. 49 pens
☐ C. 20 pens
☐ D. 25 pens

8) A recipe says: "For every 2 cups of flour there are 3 cups of sugar." Write this as a simplified numerical ratio of flour to sugar.

☐ A. 2 : 3
☐ B. 3 : 2
☐ C. 2 : 5
☐ D. 5 : 1

9)



Based on the double number line, what is the rate in cases per hour?

☐ A. 2 cases per hour
☐ B. 4 cases per hour
☐ C. 6 cases per hour
☐ D. 8 cases per hour

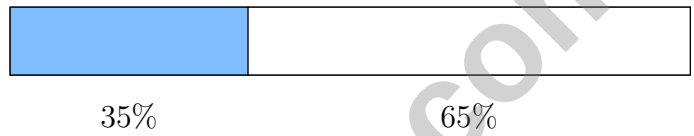
10) A factory produces 360 widgets in 8 hours. What is the production rate in widgets per hour?

☐ A. 40 widgets/hr
☐ B. 45 widgets/hr
☐ C. 50 widgets/hr
☐ D. 60 widgets/hr

11) A student graphed the relationship between tickets sold and money earned. The graph is a straight line passing through $(0, 0)$ and $(8, 32)$.
What is the slope of this line?

☐ A. $\frac{1}{4}$
☐ B. 4
☐ C. $\frac{1}{8}$
☐ D. 8

12)



Total: 500 vehicles

A parking lot has 500 vehicles. The shaded portion represents trucks. How many trucks are in the lot?

☐ A. 150
☐ B. 175
☐ C. 250
☐ D. 325

13) Complete the ratio table:

Left	3	?	15
Right	7	14	?

What are the missing values?

☐ A. 6 and 30
☐ B. 6 and 35
☐ C. 9 and 35
☐ D. 10 and 35

1) An aquarium holds 20 pints of water. How many gallons is this? (Use 1 gallon = 8 pints.)

☐ A. 2.5 gallons
☐ B. 5 gallons
☐ C. 10 gallons
☐ D. 1 gallon

2) A histogram displays test scores with a bell-shaped (normal) distribution. Where is the mean approximately located?

☐ A. At the left edge
☐ B. At the center (peak)
☐ C. At the right edge
☐ D. Outside the data range

3) A container has 15 balls: 5 red, 4 blue, 3 yellow, and 3 green. If one ball is drawn at random, what is the probability it is **not** red?

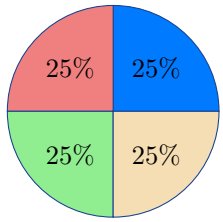
☐ A. $\frac{2}{3}$
☐ B. $\frac{2}{5}$
☐ C. $\frac{1}{3}$
☐ D. $\frac{3}{5}$

4) A stem-and-leaf plot for test scores has the shape:

Stem	Leaf
8	
9	0, 1, 2, 3, 4, 5, 6, 7, 8, 9

What can you infer from this plot?

☐ A. Most scores are in the 90s
☐ B. The mode is 95
☐ C. There are no scores in the 80s
☐ D. The range is 10



5)

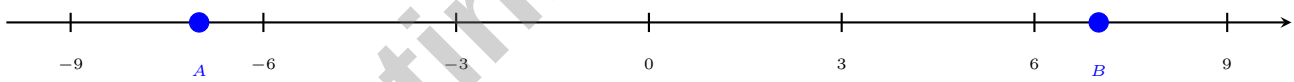
A restaurant surveyed 180 customers about their favorite drink. The circle graph shows 25% like coffee. How many customers prefer coffee?

☐ A. 45
☐ B. 35
☐ C. 25
☐ D. 55

6) Which statement about a misleading graph is TRUE?

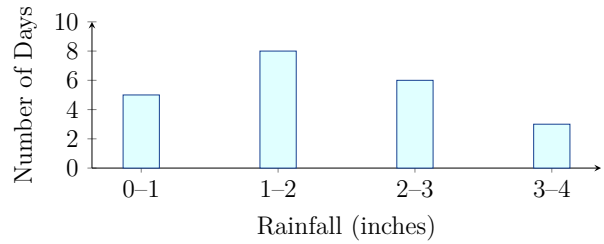
☐ A. The data is always incorrect
☐ B. Misleading graphs always have negative intent
☐ C. All bar graphs are inherently misleading
☐ D. The visual display exaggerates or downplays differences

7)



On a number line, point A is at -7 and point B is at 7. What is the distance between them?

1) A histogram displays rainfall data with bins: 0–1 inch: 5 days; 1–2 inches: 8 days; 2–3 inches: 6 days; 3–4 inches: 3 days. What is the most common rainfall range?



☐ A. 0–1 inch
☐ B. 1–2 inches
☐ C. 2–3 inches
☐ D. 3–4 inches

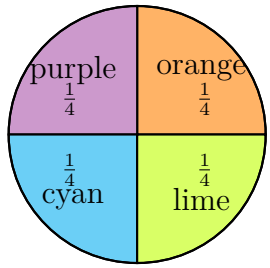
2) Compare two box plots: Dataset A has median 50 and IQR 15; Dataset B has median 45 and IQR 20. Which statement is true?

☐ A. Dataset A has a higher center and less spread.
☐ B. Dataset A has a lower center and more spread.
☐ C. Both datasets have the same center.
☐ D. Dataset B is more skewed.

3) A teacher is deciding whether to report the mean or median test score to parents. The test scores for the class are: $65, 68, 70, 72, 75, 78, 80, 82, 85, 88, 92, 98$. Which should be reported and why?

☐ A. Mean, because it uses all the data
☐ B. Median, because it better represents the typical student
☐ C. Mean, because higher numbers look better
☐ D. Median, because it is always better than the mean

4)



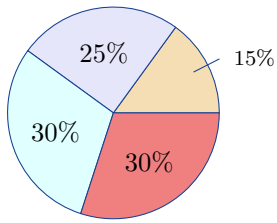
The spinner above has four equal sections. What is the probability of spinning orange or cyan?

☐ A. $\frac{1}{4}$
☐ B. $\frac{1}{2}$
☐ C. $\frac{3}{4}$
☐ D. 1

5) A teacher examines a stem-and-leaf plot and notices that all leaves for a particular stem are identical (e.g., stem 5 has leaves $3, 3, 3, 3$). What does this indicate about the data?

☐ A. The data is not properly organized
☐ B. Several data values are the same (repeated data points)
☐ C. The plot must contain an error
☐ D. All data must be in the same range

6)



A circle graph shows expenses for a business. If the total budget is \$4000, how much is allocated to the 15% category?

☐ A. \$500
☐ B. \$800
☐ C. \$700
☐ D. \$600

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 five 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.EE.3 Substitute: $3(2+3)-2=3(5)-2=15-2=13$.
2) **Choice C is correct.** 6.NS.1 $\frac{3}{5}\div\frac{1}{6}=\frac{3}{5}\times 6=\frac{18}{5}=3\frac{3}{5}$ miles.
3) **The correct answer is** 15%. 6.SP.6 Move the decimal two places right: $0.15=15\%$.
4) **Choice B is correct.** 6.RP.3 The car travels 60 miles per hour. In 3 hours: $60\times 3=180$ miles.
5) **Choice D is correct.** 6.RP.3 To convert a percent to a decimal, divide by 100 (or move the decimal two places left). $19\%=0.19$.
6) **Choice B is correct.** 6.EE.9 Using $w=8t$ (water = 8 ounces per second): after 5 seconds, $w=8\times 5=40$ ounces. The graph passes through the origin, not $(0,8)$.
7) **Choice D is correct.** 6.RP.1 Match 35 red pens to the 7 red parts: $35\div 7=5$, so each part is worth 5 pens. Blue has 5 parts, so $5\times 5=25$ blue pens.
8) **Choice A is correct.** 6.RP.3 The phrase gives flour first and sugar second. So "for every 2 cups of flour there are 3 cups of sugar" translates directly to $2:3$.
9) **Choice A is correct.** 6.RP.1 From the double number line, 4 cases correspond to 2 hours. The rate is $4\div 2=2$ cases per hour.
10) **Choice B is correct.** 6.RP.2 $360\div 8=45$ widgets per hour.
11) **Choice B is correct.** 6.RP.3 The slope is $\frac{\text{rise}}{\text{run}}=\frac{32-0}{8-0}=\frac{32}{8}=4$. This represents \$4 per ticket.
12) **Choice B is correct.** 6.RP.3 35% of $500=0.35\times 500=175$ trucks.
13) **Choice B is correct.** 6.RP.3 Ratio is $3:7$. Second column: Right = 14 means Left $=14\div 7\times 3=6$. Third column: Left = 15 means Right $=15\div 3\times 7=35$.
14) **Choice A is correct.** 6.RP.3 Divide: $45\div 1000=0.045$ km.
15) **Choice B is correct.** 6.G.5 Amy: $\$8.00\times 8=\$64$. Ben: $\$7.00\times 12=\$84$. So Ben earns more.
16) **Choice C is correct.** 6.EE.9 Correct entertainment budget: 15% of \$2000 $=0.15\times 2000=\$300$. The parent allocated \$400 when it should be \$300.
17) **Choice A is correct.** 6.RP.3 Divide: 3 m $\div$ 6 cm = 0.5 m per cm. Scale is 1 cm = 0.5 m.
18) **The correct answer is Right-skewed distribution with high outliers..** 6.SP.5 When mean (60) > median (55), the tail points right, pulled by high values. (A) A right-skewed distribution matches. (C) High values pull mean up. (B) is wrong—left skew would give mean < median. (D) is wrong—low values would pull mean down. (E) is wrong—symmetric means mean = median.
19) **Choice A is correct.** 6.NS.2 $2{,}856\div 12=238$. The long division shows quotient 238 with no remainder.
20) **Choice A is correct.** 6.NS.3 Multiply both by 10: $72\div 8=9$.
21) **Choice A is correct.** 6.NS.4 The rectangle shows a common factor of 6 with addends 3 and 8. The area is $6\times 3+6\times 8=18+48=66=6(3+8)$. Choice A is correct.
22) **Choice D is correct.** 6.NS.5 The integers -7 and 7 satisfy all three conditions: they are each 7 units from zero, they are opposites, and they are on opposite sides of zero.
23) **Choice C is correct.** 6.SP.4 Distance $=\frac{3}{4}-(-\frac{1}{4})=\frac{3}{4}+\frac{1}{4}=\frac{4}{4}=1$.
24) **Choice D is correct.** 6.NS.8 The points differ only in the sign of the y-coordinate, which is the definition of reflection across the x-axis.
25) **Choice B is correct.** 6.NS.8 Since $|5-y|=7$, then $y=5-7=-2$ or $y=5+7=12$.
26) **Choice B is correct.** 6.EE.1 $500+200+(-350)=700-350=350$ points.
27) **Choice A is correct.** 6.NS.3 Four negatives (even number) multiply to a positive: $(-1)\times(-1)\times(-1)\times(-1)=1$. Then $1\times 8=8$.

Author's Note

A Note From Your Math Friend

Hi, Math Star!

◇ Wow! You finished 5 full practice tests. That is a LOT of math problems. You worked hard, and your brain got stronger every time. ◇

⋆ **Here is a big idea:** mistakes are okay! Every time you got something wrong, you got smarter. Through 5 tests, you learned that trying is the most important thing. ⋆

Look What You Did!

- **Hard Worker:** You did not give up!
- **Smart Thinker:** You used your math tools.
- **Brave Learner:** You tried hard problems.
- **Test Ready:** You feel proud and prepared.

Big tip for test day: take your time. Read each problem twice. Show your work. Check your answer. You can do this!

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

Jay Daie

Your Math Friend

PRACTICE MORE.
ACHIEVE MORE.

This book provides **5 full-length Math practice tests** designed to help Grade 6 students strengthen their skills, build confidence, and excel on standardized assessments.

Each test is carefully crafted to reflect the latest standards and covers a wide range of math topics with realistic questions and detailed answer explanations.

BUILD CONFIDENCE
Practice builds familiarity and reduces test anxiety.

IMPROVE ACCURACY
Sharpen skills and avoid common mistakes.

ACHIEVE SUCCESS
Consistent practice leads to greater results.

WHAT'S INSIDE?

5 Full-Length Practice Tests
Realistic tests designed to mirror actual exam conditions.

Realistic Questions
A variety of question types to strengthen problem-solving skills.

Answer Keys & Explanations
Detailed solutions to help students learn and improve.

Performance Tracking
Track progress and identify areas that need improvement.

Comprehensive Coverage
All essential topics aligned with Grade 6 math standards.

VISIT TESTINAR.COM/MATH6
FOR MORE PRACTICE TESTS AND LEARNING RESOURCES

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY

PREPARE TODAY. SUCCEED TOMORROW!