

8 Alaska AK STAR

GRADE 6

MATH

PRACTICE TESTS

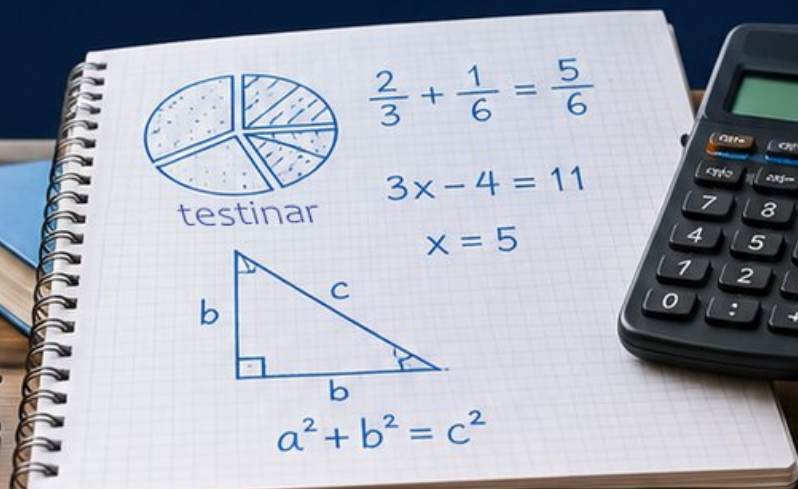
8
PRINTED
TESTS

+

2
ONLINE
TESTS

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

Standards-Aligned *Steady Southern* Problem Solving for Comprehensive Assessment Program



BUILT FOR
ACAP SUCCESS



REALISTIC TESTS
& QUESTION TYPES



STRENGTHEN
MATH SKILLS



REVIEW, PRACTICE,
AND IMPROVE

8 Alaska AK STAR Grade 6 Math Practice Tests

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



Eight 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 eight 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.

Read

Plan

Check

How to Use This Book

A eight-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 1–3	Foundation rounds for ratios, rational numbers, operations, and careful reading.
Tests 4–6	Skill-building rounds with expressions, equations, geometry, data, and problem models.
Tests 7–8	Final stamina rounds 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.



Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	29
★ Practice Test 3	_____	44
★ Practice Test 4	_____	57
★ Practice Test 5	_____	73
★ Practice Test 6	_____	90
★ Practice Test 7	_____	103
★ Practice Test 8	_____	120
Practice Test Answer Keys	_____	137
Practice Test Answers and Explanations	_____	142

4) What is the range of the data set 15, 22, 9, 30, 18?

A. 21

C. 9

B. 18

D. 30

5) On a number line, point A is at -3 and point B is at 4 . What is the distance between the two points?

6) A toy dinosaur model is 10 cm tall. The scale is $1 \text{ cm} = 0.8 \text{ m}$. How tall is the actual dinosaur?

A. 4 m

C. 8 m

B. 6 m

D. 10 m

7) Compute: $7 \times (-5)$

A. -35

C. -2

B. 35

D. 2

8) A submarine is -120 feet (below sea level). It ascends 45 feet. What is its new elevation?

A. -165 feet

C. 75 feet

B. -75 feet

D. 165 feet



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9) Write an expression for “the difference of 5 times a number x and 12”.

A. $5(x - 12)$

C. $12 - 5x$

B. $5x - 12$

D. $5 - x - 12$

10) A phone plan costs \$30 per month plus a one-time setup fee of \$25. If m is the number of months and C is the total cost, which equation represents this?

A. $C = 30m$

C. $C = 30m + 25$

B. $C = 25m$

D. $C = 25m + 30$

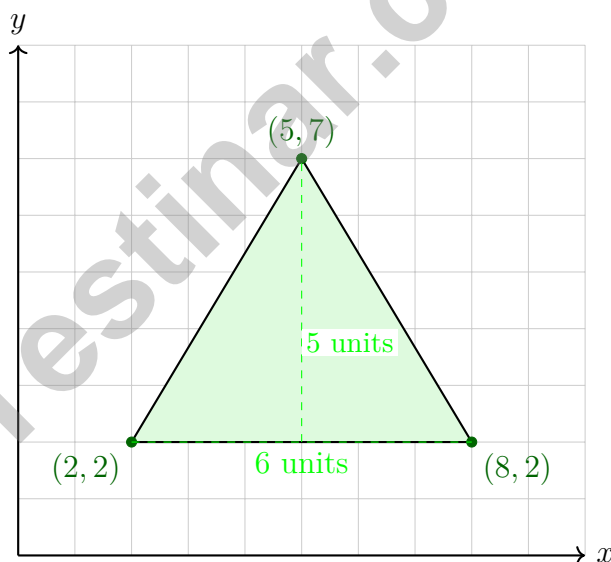
11) A trapezoid has bases of 10 cm and 6 cm. If the area is 32 cm^2 , what is the height?

A. 2 cm

C. 4 cm

B. 3.2 cm

D. 8 cm



12)

What is the area of this triangle?

A. 15 square units

C. 25 square units

B. 20 square units

D. 30 square units



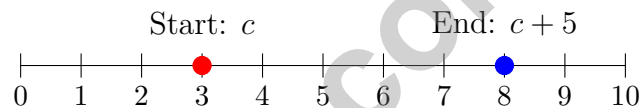
1) A rectangular prism has surface area 192 cm^2 . Its length is 10 cm and width is 4 cm. What is its height?

- A. 3 cm C. 5 cm
 B. 4 cm D. 8 cm

2) A box plot shows: min = 5, $Q_1 = 15$, median = 20, $Q_3 = 25$, max = 40. What is the range?

- A. 10 C. 35
 B. 20 D. 40

3)



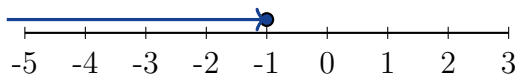
The number line shows a starting value c and an ending value $c + 5$. If $c = 2$, what is the ending value?

- A. 5 C. 2
 B. 10 D. 7
- 4) Which step would you use first to solve $4x = 20$?
- A. Add 4 to both sides C. Divide both sides by 4
 B. Subtract 4 from both sides D. Multiply both sides by 4



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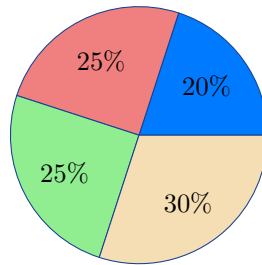
5) Which number line shows the solution to $x \leq -1$?



- A. Closed circle at -1 , arrow pointing right
- B. Open circle at -1 , arrow pointing left
- C. Closed circle at -1 , arrow pointing left
- D. Closed circle at 1 , arrow pointing left
- 6) A circle has an approximate area of 50.24 cm^2 . Using $\pi \approx 3.14$, what is the radius?
- A. 2 cm
- B. 4 cm
- C. 8 cm
- D. 16 cm
- 7) A dot plot shows customer wait times (in minutes): 5, 7, 8, 8, 10, 12, 12, 12, 15, 20. What is the range of the wait times?

- 8) Find the Mean Absolute Deviation for: 2, 4, 6, 8.
- A. 1
- B. 2
- C. 3
- D. 4
- 9) A box plot shows the distribution of test scores. The line inside the box marks the:
- A. Mean
- B. Range
- C. Mode
- D. Median

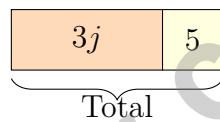




1)

If the total is 200 items, how many items are in the 20% section?

- A. 40
- B. 30
- C. 50
- D. 60



2)

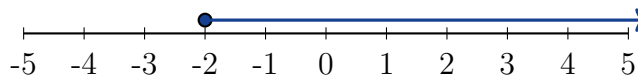
The bar model shows $3j$ and 5. If the total is 20, what is the value of j ?

- A. 5
- B. 8.33
- C. 15
- D. 25

3) Which equation has a solution of $x = 10$?

- A. $x + 5 = 14$
- B. $3x = 30$
- C. $x - 4 = 5$
- D. $x + 2 = 11$

4) Graph the inequality $x \geq -2$ on a number line. Which description matches your graph?



- A. Closed circle at -2 , arrow left
- B. Open circle at -2 , arrow right
- C. Closed circle at -2 , arrow right
- D. Open circle at -2 , arrow left



5) Points $A(-2, 1)$ and $B(4, 1)$ lie on a coordinate plane. What is the distance between them?

A. 4 units

C. 6 units

B. 5 units

D. 7 units

6) An error analysis: A student claims that $-12 - 8 = -4$. Which statement is correct?

A. The student is correct; $-12 - 8 = -4$.

C. The student is incorrect; the answer is 4.

B. The student is incorrect; the answer is -20 .

D. The student is incorrect; the answer is 20.

7) A swimming pool is filled to 45.5 L on Monday and 62.8 L on Tuesday. How many more liters are in the pool on Tuesday?

8) Find the GCF of 42 and 28.

9) Write an expression for “7 less than the product of a number y and 9”.

A. $7 - 9y$

C. $9y - 7$

B. $9(y - 7)$

D. $y - 9 - 7$



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& answers

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.



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Alaska Practice Test Answers and Explanations

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

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (6.SP.4) Total readings: $2 + 4 + 3 + 3 = 12$. Readings from 60-79 (stems 6 and 7): $4 + 3 = 7$ out of 12. Percent: $7/12 \approx 58\% \approx 60\%$.
- 2) **Choice A is correct.** (6.G.5) Radius $r = \frac{10}{2} = 5$ ft. Area $= \pi r^2 \approx 3.14 \times 5^2 = 3.14 \times 25 = 78.5$ ft².
- 3) **Choice A is correct.** (6.SP.2) The bar at the 25 mark (representing the 20–30 interval) has a height of only 2, the smallest of all intervals.
- 4) **Choice A is correct.** (6.SP.2) Range = maximum – minimum = $30 - 9 = 21$.
- 5) **The correct answer is 7.** (6.SP.4) Distance = $4 - (-3) = 4 + 3 = 7$ units. Use the formula: larger value minus smaller value.
- 6) **Choice C is correct.** (6.RP.3) Multiply the model height by the scale: $10 \text{ cm} \times 0.8 \text{ m/cm} = 8 \text{ m}$.
- 7) **Choice A is correct.** (6.NS.3) A positive times a negative is negative: $7 \times (-5) = -35$.
- 8) **Choice B is correct.** (6.EE.7) Ascending means the elevation increases: $-120 + 45 = -75$ feet.
- 9) **Choice B is correct.** (6.EE.3) “Five times x ” is $5x$. “The difference of $5x$ and 12” means subtract 12 from $5x$: $5x - 12$.
- 10) **Choice C is correct.** (6.EE.9) Total cost equals the monthly fee times months plus the one-time setup fee: $C = 30m + 25$.
- 11) **Choice C is correct.** (6.G.1) Using $A = \frac{1}{2}(b_1 + b_2) \times h$: $32 = \frac{1}{2}(10 + 6) \times h = 8h$, so $h = 4$ cm.
- 12) **Choice A is correct.** (6.G.3) Area $= \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 6 \times 5 = 15$ square units.
- 13) **Choice B is correct.** (6.G.1) The formula for a triangle is Area $= \frac{1}{2} \times \text{base} \times \text{height}$. The student multiplied base and height but forgot the $\frac{1}{2}$ factor. The correct area $= \frac{1}{2} \times 8 \times 6 = 24$ square units.
- 14) **Choice B is correct.** (6.G.4) $SA = 6s^2 = 384 \Rightarrow s^2 = 64 \Rightarrow s = 8$ cm. Volume $= s^3 = 8^3 = 512$ cm³.
- 15) **Choice A is correct.** (6.NS.8) Translating left subtracts from x : $C(3, 3) \rightarrow C'(3 - 2, 3) = C'(1, 3)$.
- 16) **Choice B is correct.** (6.SP.5) The median is the middle value and is unaffected by extreme outliers. The mean, range, and standard deviation all respond strongly to outliers.
- 17) **Choice A is correct.** (6.SP.6) Coin flip: 2 outcomes (H or T). Die roll: 6 outcomes. Total $= 2 \times 6 = 12$ outcomes.
- 18) **The correct answer is Food and Transportation are correctly calculated.** (6.EE.9) A: Housing is $35\% \times 2000 = \$700$, not \$800. Incorrect. B: Food is $25\% \times 2000 = \$500$. Correct. C: Utilities is $12\% \times 2000 = \$240$, not \$260. Incorrect. D: Transportation is $10\% \times 2000 = \$200$. Correct. E: Other is $18\% \times 2000 = \$360$, not \$450. Incorrect.
- 19) **Choice C is correct.** (6.NS.1) $\frac{2}{5} = 40\%$. So $0.40 \times 480 = 192$ matinee tickets.
- 20) **Choice B is correct.** (6.RP.3) The median (middle value when ordered) is 2.5, largely unaffected by the outlier 5. The mean becomes 2.3 (affected), mode is 2, and range is 5 (which reflects the outlier).
- 21) **Choice D is correct.** (6.RP.3) $\frac{4}{5} = \frac{80}{100} = 0.8 = 80\%$.
- 22) **Choice C is correct.** (6.EE.9) The constant speed is $\frac{45 \text{ miles}}{3 \text{ hours}} = 15$ mph. In 5 hours: distance $= 15 \times 5 = 75$ miles.
- 23) **Choice D is correct.** (6.NS.4) This is a GCF problem. The GCF of 16 and 24 is 8. So they can distribute into 8 bins with 2 soccer balls and 3 basketballs in each.
- 24) **Choice C is correct.** (6.NS.7) $P = -2$ and $Q = 2$. Distance $= 2 - (-2) = 4$ units.
- 25) **Choice A is correct.** (6.EE.1) $a + b - (-3) = -10 + 7 + 3 = 0$.
- 26) **The correct answer is 32.** (6.EE.8) No more than 32 means 32 is the maximum allowed value.
- 27) **The correct answer is 5.** (6.EE.8) The boundary value is 5.
- 28) **Choice D is correct.** (6.RP.1) The whole bar has $3 + 1 = 4$ equal parts. Each part is $20 \div 4 = 5$ units, and wheat is 3 parts: $3 \times 5 = 15$ units.
- 29) **Choice A is correct.** (6.RP.3) Milk is the 3-part amount. Since $45 \div 3 = 15$, each part is 15 fl oz, and chocolate syrup is 2 parts: $2 \times 15 = 30$ fl oz.



Author's Note

From a Friend Who Believes in You

Hi, Friend!

◇ I just want to say something important: I am proud of you. You did 8 full practice tests. That takes time, hard work, and heart. ◇

★ **Friendly truth:** a test is just one part of your math journey. You are SO much more than a score. The work you did is the real win! ★

What I Want You to Know

- **You are smart.** Every test you finished proves it.
- **You are brave.** You tried hard problems.
- **You are growing.** Mistakes taught you new things.
- **You are ready.** The skills are inside you.

One more thing: on test day, take a deep breath. Smile. Remember that someone (me!) believes in you. 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

MASTER MATH. ACE YOUR TESTS.

This Grade 6 Math Practice Tests book is designed to help students build confidence, strengthen math skills, and excel on comprehensive assessments.

With 8 full-length printed tests and 2 online tests, this resource provides realistic practice, a variety of question types, and detailed answer explanations to help students achieve their best.

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



PERFECT FOR

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



**PRACTICE TODAY.
SUCCEED TOMORROW.**

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.



Understand Key Concepts

Reinforce important math ideas aligned with standards.



Test Confidence

Get familiar with test formats and improve accuracy.



Achieve Success

Build confidence and perform your best on test day.

TOPICS COVERED

- ✓ Ratios & Rates
- ✓ Percents
- ✓ The Number System
- ✓ Statistics & Probability
- ✓ Expressions & Equations
- ✓ Data Analysis
- ✓ Geometry
- ✓ Measurement & Conversions
- ✓ Fractions & Decimals
- ✓ 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.



8 FULL-LENGTH
PRACTICE TESTS



2 ONLINE
PRACTICE TESTS



DETAILED ANSWER
EXPLANATIONS