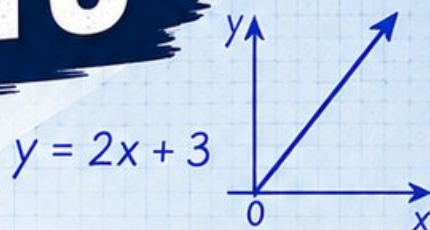


3 Alaska AK STAR

GRADE
6
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$\frac{3}{5} + \frac{2}{10} = \frac{8}{10} = \frac{4}{5}$$

$36\% \text{ of } 150 = ?$



3 | PRINTED
TESTS



2 | ONLINE
TESTS



Build
Confidence



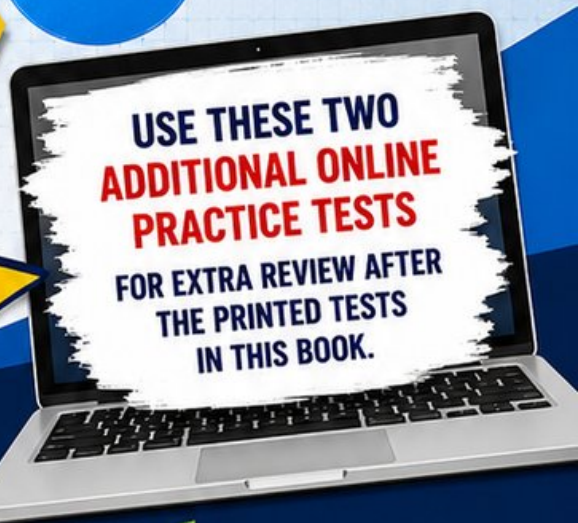
Master Key
Math Skills



Answer Explanations
for Every Question

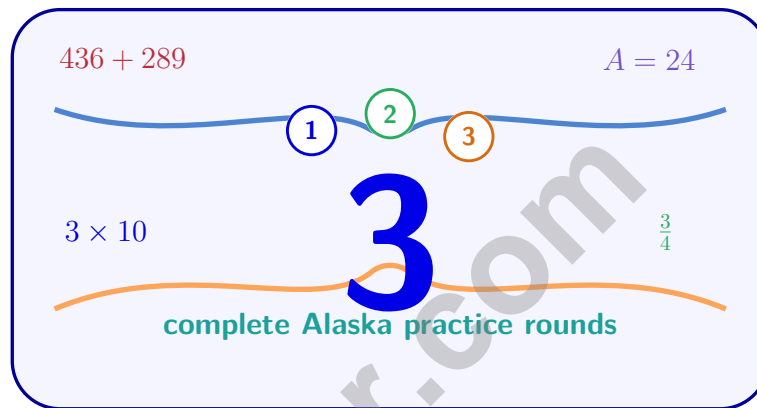


Test-Taking
Strategies That Work



3 Alaska AK STAR Grade 6 Math Practice Tests

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



Three 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!

Three focused rounds using calm explorer thinking

This book gives you three 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 three-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?

Three AK STAR tests, 120 questions, and a full review path

Part	What You Will Practice
Tests 1–2	Foundation rounds for ratios, rational numbers, operations, and careful reading.
Test 3	Final stamina round for expressions, equations, geometry, data, problem models, and mixed review.
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.

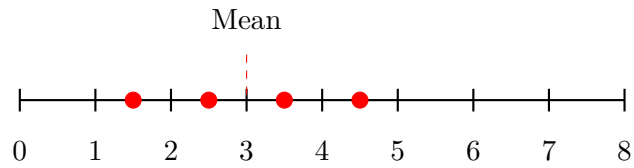


Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	28
★ Practice Test 3	_____	43
Practice Test Answer Keys	_____	61
Practice Test Answers and Explanations	_____	64

1) Find the mean of the values shown on the number line:



- A. 2.5 C. 3.5
 B. 3 D. 4

2) A shirt is on sale for 50% off. Which decimal represents the discount?

- A. 0.05 C. 5.0
 B. 0.5 D. 50.0

3) What is the GCF of 18, 27, and 45?

- A. 3 C. 6
 B. 9 D. 18

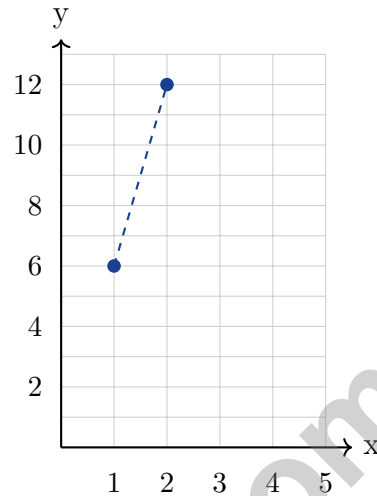
4) A circle has a radius of 5 cm. What is its approximate area? Use $\pi \approx 3.14$.

- A. 15.7 cm² C. 78.5 cm²
 B. 31.4 cm² D. 314 cm²

5) In a student club, the ratio of 6th graders to 7th graders is 4 : 6. If there are 12 sixth graders, how many seventh graders are in the club?



- 6) A graph shows a proportional relationship with the line $y = 6x$. Which of the following points lies on this line?



- A. (1, 6) C. (3, 12)
- B. (2, 8) D. (4, 18)
- 7) A store sells shirts regularly at \$35 each. During a clearance, they are 60% off. What is the clearance price?
- A. \$14 C. \$20
- B. \$15 D. \$21
- 8) Which pair of ratios is equivalent?
- A. 4 : 5 and 8 : 15 C. 2 : 9 and 4 : 20
- B. 5 : 6 and 10 : 13 D. 3 : 7 and 6 : 14



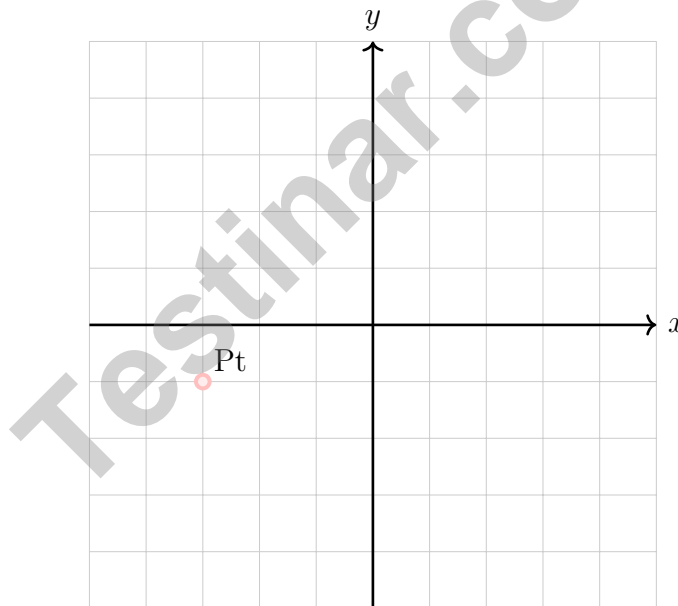
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& answers

1) A student is analyzing the relationship between television screen size (s , in inches) and price (p , in dollars). The data shows: 32 inches for \$200, 55 inches for \$350, and 65 inches for \$420. Is the relationship proportional?

- A. Yes; larger sizes cost more
- B. Yes; the ratio p/s is constant
- C. No; the ratio p/s is not constant
- D. Cannot determine without a graph

2) A rectangular prism has length 8 m, width 4 m, and height 3 m. Find the surface area.

- A. 96 m^2
- B. 152 m^2
- C. 192 m^2
- D. 288 m^2



3)

If a point at $(-3, -1)$ is reflected over the x -axis, which of the following is the image?

- A. $(-3, 1)$
- B. $(-3, -1)$
- C. $(3, 1)$
- D. $(3, -1)$

4) Read the question: “What is the temperature in my room right now?”

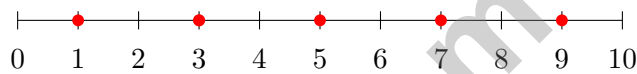
Why is this NOT a statistical question?

- A. It does not mention many people.
- B. It is asked too quickly.
- C. Temperature is hard to measure.
- D. It has one fixed answer at one moment in time.

5) What is the median of: 15, 20, 25, 30?

- A. 20
- B. 22.5
- C. 25
- D. 27.5

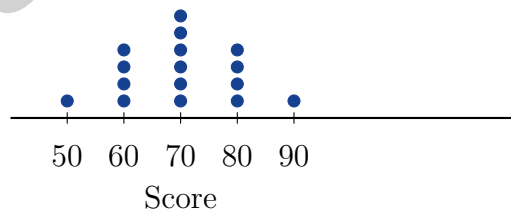
6)



A dot plot shows the data: one dot at 1, two dots at 3, one dot at 5, one dot at 7, one dot at 9. What is the range?

- A. 6
- B. 8
- C. 2
- D. 5

7) A dot plot shows exam scores. When comparing the shape, what is the difference between a right-skewed distribution and a symmetric distribution?



- A. Symmetric has a longer tail; right-skewed is centered
- B. Right-skewed has a longer tail to the right; symmetric is balanced on both sides
- C. They have the same shape but different heights
- D. Right-skewed means all values are equal



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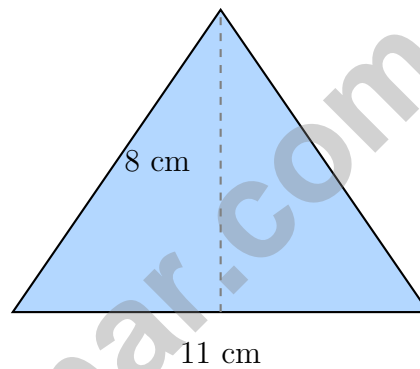
1)

City	A	B	C	D
Temperature ($^{\circ}\text{C}$)	-5	2	-1	0

Which city is coldest?

 A. City A C. City C B. City B D. City D

2) What is the area of an isosceles triangle with base 11 cm and height 8 cm?

 A. 19 cm^2 C. 88 cm^2 B. 44 cm^2 D. 176 cm^2 3) A trapezoid has an area of 56 in^2 and bases of 10 in and 6 in. What is the height? A. 4 in C. 7 in B. 6 in D. 14 in

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& answers

4) Box X: 5 ft by 2 ft by 3 ft. Box Y: 4 ft by 2 ft by 4 ft. Which box has greater volume and by how much?

A. Box X by 1 ft^3

C. Box X by 2 ft^3

B. Box Y by 1 ft^3

D. Box Y by 2 ft^3

5) In Quadrant IV, how many coordinates are negative?

6) A pentagon has vertices at $(1, 1)$, $(5, 1)$, $(7, 4)$, $(4, 7)$, and $(1, 5)$. How many sides does it have?

A. 4 sides

C. 6 sides

B. 5 sides

D. 7 sides



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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& answers

Alaska Practice Test Answers and Explanations

Review the three 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.2)** Mean = $\frac{1.5 + 2.5 + 3.5 + 4.5}{4} = \frac{12}{4} = 3.5$. The dashed line marks the mean.
- 2) **Choice B is correct.** **(6.RP.3)** $50\% = \frac{50}{100} = 0.5$.
- 3) **Choice B is correct.** **(6.NS.4)** Factors of 18: 1, 2, 3, 6, 9, 18. Factors of 27: 1, 3, 9, 27. Factors of 45: 1, 3, 5, 9, 15, 45. Common to all three: 1, 3, 9. GCF is 9.
- 4) **Choice C is correct.** **(6.G.5)** Area of a circle = $\pi r^2 \approx 3.14 \times 5^2 = 3.14 \times 25 = 78.5 \text{ cm}^2$.
- 5) **The correct answer is 18.** **(6.RP.3)** The ratio of sixth graders to seventh graders is 4 : 6, which simplifies to 2 : 3. If 2 parts are 12 students, each part is 6, so seventh graders are $3 \times 6 = 18$.
- 6) **Choice A is correct.** **(6.RP.3)** For the equation $y = 6x$: when $x = 1$, $y = 6(1) = 6$, so (1, 6) is on the line. Check other options: (2, 8) gives $8 \neq 12$; (3, 12) gives $12 \neq 18$; (4, 18) gives $18 \neq 24$. Only A satisfies the equation.
- 7) **Choice A is correct.** **(6.RP.3)** 60% of $\$35 = 0.60 \times 35 = \21 . Clearance price is $\$35 - \$21 = \$14$.
- 8) **Choice D is correct.** **(6.RP.3)** Check: $6 : 14 = (6 \div 2) : (14 \div 2) = 3 : 7$. The other pairs are not equivalent.
- 9) **Choice A is correct.** **(6.RP.3)** Divide: $2500 \div 1000 = 2.5 \text{ kg}$. The student's error of multiplying would give an absurdly large number.
- 10) **Choice C is correct.** **(6.G.5)** 15% of $\$400$ is $0.15 \times 400 = \$60$.
- 11) **Choice C is correct.** **(6.EE.9)** For $y = \frac{2}{3}x$, when $x = 6$, $y = \frac{2}{3}(6) = 4$, so (6, 4) is on the line. The other points do not satisfy the equation: (2, 4) would need $y = \frac{4}{3}$, (3, 3) would need $y = 2$, and (6, 9) would need $y = 4$.
- 12) **Choice C is correct.** **(6.EE.9)** Total savings: $\$12 \times 6 = \72 .
- 13) **Choice D is correct.** **(6.RP.3)** Actual side: $2 \times 10 = 20$ feet. Area: $20 \times 20 = 400 \text{ sq ft}$.
- 14) **Choice B is correct.** **(6.NS.1)** $\frac{4}{7} \times \frac{7}{2} = \frac{28}{14} = 2$.
- 15) **Choice A is correct.** **(6.NS.2)** $3,564 \div 12 = 297$. Check: $12 \times 297 = 3,564$.
- 16) **The correct answer is 40 miles per hour.** **(6.RP.1)** Divide distance by time: $360 \div 9 = 40$ miles per hour.
- 17) **Choice A is correct.** **(6.NS.3)** Work left to right: $9.6 - 2.7 = 6.9$, then $6.9 + 1.1 = 8.0$.
- 18) **Choice A is correct.** **(6.NS.4)** Using the distributive property: $7(4 + 6) = 7 \cdot 4 + 7 \cdot 6 = 28 + 42 = 70$.
- 19) **The correct answer is Girls to boys is 10 : 15 = 2 : 3 (Choice A is correct). Boys to total is 15 : 25 = 3 : 5 (Choice B is correct).** **(6.RP.1)** Choice A is correct because girls to boys is 10 : 15, which simplifies to 2 : 3. Choice B is correct because boys to total is 15 : 25, which simplifies to 3 : 5. The other choices either flip the order, swap which group is named first, or use the wrong total (10 girls out of 25 students is 2 : 5, not 1 : 3).
- 20) **Choice D is correct.** **(6.NS.5)** Negative numbers are located to the left of zero on a number line. The number -6 is 6 units to the left of zero.
- 21) **Choice A is correct.** **(6.SP.4)** Opposite of 8 is -8 . Opposite of -8 is 8. Double opposites return to the original.
- 22) **The correct answer is \$405.** **(6.RP.2)** Unit rate: $\$360 \div 40 = \9 per hour. Total hours: $40 + 5 = 45$ hours. Total earnings: $45 \times \$9 = \405 .
- 23) **Choice B is correct.** **(6.SP.4)** Absolute values: $|-2.3| = 2.3$, $|-4.1| = 4.1$, $|3.9| = 3.9$, $|1.8| = 1.8$. The greatest is 4.1.
- 24) **Choice C is correct.** **(6.NS.8)** All points on the y -axis, including the positive y -axis, have $x = 0$.
- 25) **Choice C is correct.** **(6.NS.7)** $R = 1$ and $S = 5$, so $1 < 5$. Note: $S - R = 4$, not 3.
- 26) **Choice C is correct.** **(6.NS.8)** Side length: 5 units. Perimeter: $4 \times 5 = 20$ units.
- 27) **Choice C is correct.** **(6.EE.1)** Starting floor: -8 . Rising 15 floors: $-8 + 15 = 7$.
- 28) **Choice B is correct.** **(6.NS.3)** Three identical jumps of -1 can be represented as $3 \times (-1) = -3$.



Lab Notes for a Young Scientist

Hi, Curious Scientist!

◇ 3 tests. So many experiments! You tested ideas. You watched what worked. You learned a lot. That's how scientists work—and how you work! ◇

★ **Scientists know:** mistakes are facts, not failures. Every problem you missed taught you something. You used those facts to do better next time. ★

Lab Results

- **Hypothesis:** CONFIRMED! Practice makes you better.
- **Method:** STRONG! You try, watch, and adjust.
- **Data:** CAREFUL! You read and copy numbers right.
- **Conclusion:** READY! You can do this test.

Scientist tip: on test day, stay curious. Ask, "What is this asking?" Then experiment with your math tools. You will find the answer!

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

Jay Daie

Your Math Scientist

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 3 full-length Math practice tests and 2 online tests to help Grade 6 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

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

THIS BOOK INCLUDES:

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-  Detailed Answer Explanations

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Build a solid foundation through targeted practice and review.



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Develop logical thinking and effective solution strategies.



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Reinforce key concepts with clear explanations and meaningful practice.



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Achieve Success

Build confidence and perform your best on test day.

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



2 ONLINE TESTS

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



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AND LEARNING RESOURCES



PRACTICE
REGULARLY



STAY
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SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY

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