

10 Alaska AK STAR

GRADE
6
MATH

PRACTICE TESTS

Standards-Aligned Review
Mixed Practice & Answer Key



10 PRINTED TESTS

Realistic practice to build confidence and mastery



2 ONLINE TESTS

Extra practice for continued success



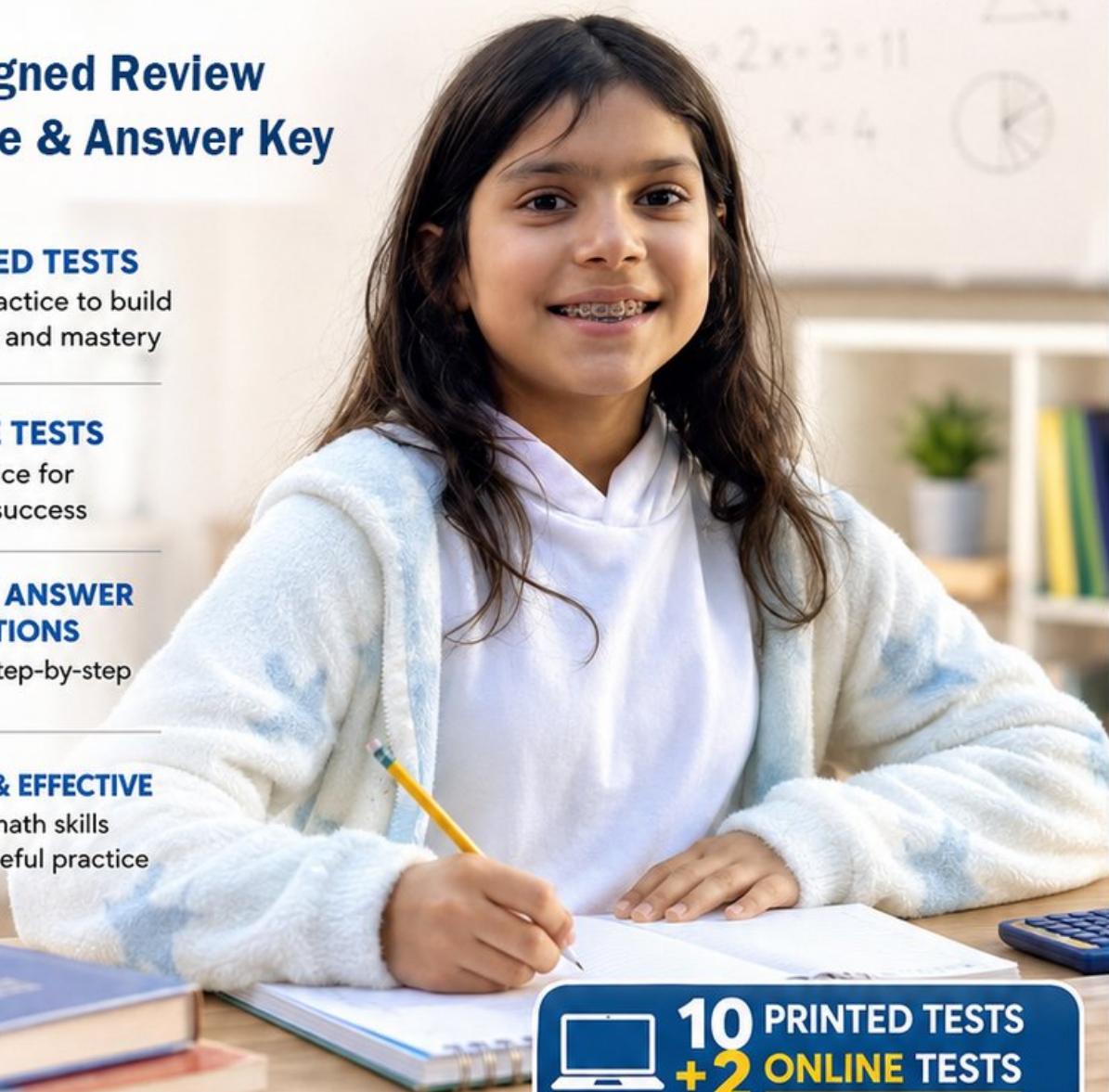
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step solutions



FOCUSED & EFFECTIVE

Target key math skills with purposeful practice



10 PRINTED TESTS
+ 2 ONLINE TESTS

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

PRACTICE • REVIEW • SUCCEED

10 Alaska AK STAR Grade 6 Math Practice Tests

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



Ten complete 40-question Grade 6 practice rounds for AK STAR, 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!

Ten steady rounds on a Last Frontier math expedition

This book gives you ten 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 carefully from clue to clue, the way a trail marker guides a route. I will slow down for the question, circle what matters, solve one step at a time, and use mistakes as clues for getting stronger.

Read

Plan

Check

How to Use This Book

A ten-session routine for calm explorer thinking

1. **Preview the skills.** Read the quick review pages before the first test.
2. **Take one test at a time.** Work in a quiet place and answer all 40 questions.
3. **Mark your confidence.** Put a small star beside problems you solved with a strong plan.
4. **Check, then retry.** For missed questions, try the problem again before reading the explanation.
5. **Track your next move.** Use the growth log to name one habit and one skill for the next test.

Alaska review rhythm: Test one day, correct carefully the next day, then return for the next round when your corrections feel clear.



What Is Inside?

Ten AK STAR tests, 400 questions, and a full review path

| Part | What You Will Practice |
|--------------|--|
| Tests 1–3 | Warm-up rounds for ratios, rational numbers, operations, and careful reading. |
| Tests 4–6 | Skill-building rounds with expressions, equations, geometry, data, and problem models. |
| Tests 7–9 | Stamina rounds for mixed review, neat work, and flexible strategy choices. |
| Test 10 | Final Alaska round to show growth across the whole book. |
| 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.



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For more practice
& answers

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1) A ratio table is being converted to points for graphing. The table shows:

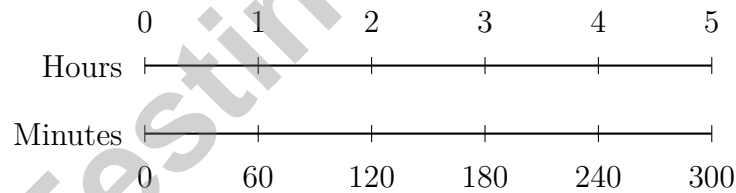
| Students | Desks |
|----------|-------|
| 4 | 2 |
| 8 | 4 |
| 12 | 6 |

If students are on the x-axis and desks are on the y-axis, which ordered pair is correct?

- A. (2, 4) C. (4, 4)
 B. (4, 2) D. (2, 2)

2) Which pair of ratios are NOT equivalent?

- A. 2 : 5 and 4 : 10 C. 4 : 8 and 1 : 3
 B. 3 : 7 and 6 : 14 D. 5 : 6 and 10 : 12



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

- A. 30 minutes per hour C. 90 minutes per hour
 B. 60 minutes per hour D. 150 minutes per hour



8) The table shows the ratio of wins to losses for three sports teams.

| Team | Wins | Losses |
|----------|------|--------|
| Panthers | 12 | 8 |
| Tigers | 9 | 6 |
| Lions | 6 | 5 |

Which two teams have the same win-to-loss ratio?

- A. Panthers and Tigers
 C. Panthers and Lions
 B. Tigers and Lions
 D. All three teams

9) A construction team builds a wall at a constant rate. They complete $\frac{3}{4}$ of the wall in 6 hours. How many hours does it take to build the entire wall?

- A. 4.5 hours
 C. 9 hours
 B. 8 hours
 D. 10 hours

10)

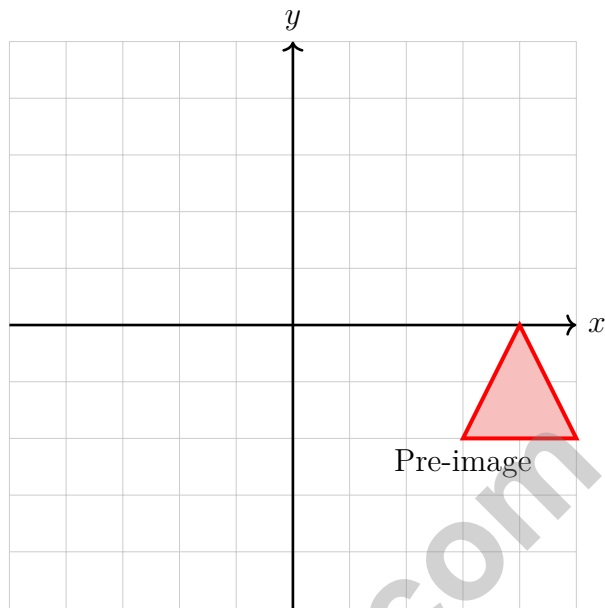
Proportional Relationship

| Quantity A | Quantity B | Ratio |
|------------|------------|-------|
| 8 | 12 | 2 : 3 |
| 10 | 15 | ? |
| 12 | 18 | 2 : 3 |

What ratio should fill the ? in the table above?

- A. 1 : 2
 C. 2 : 5
 B. 2 : 3
 D. 3 : 4



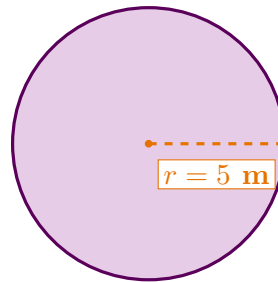


1)

A triangle with vertices at $(3, -2)$, $(5, -2)$, and $(4, 0)$ is translated 4 units left and 2 units up. What will be the image of the vertex originally at $(5, -2)$?

 A. $(1, 0)$ C. $(1, -4)$ B. $(9, -4)$ D. $(9, 0)$ 

Shaded Circle



2)

The shaded circle has a radius of 5 meters. Using $\pi \approx 3.14$, what is the approximate area?

- A. 15.7 m^2 C. 78.5 m^2
 B. 31.4 m^2 D. 157 m^2

3) A student asks: "How tall are the students in my class?"

Identify the population being sampled.

- A. The height measurement in inches C. All students in the school
 B. The students in the class who are measured D. The students in the class

4) A box plot shows $Q1 = 10$, Median = 15, $Q3 = 20$, Min = 5, Max = 35. What is the IQR?

- A. 5 C. 15
 B. 30 D. 10

5) A teacher reports that the mean test score is 75 and the median is 82. What does this suggest?

- A. The distribution is symmetric C. Some very low scores pulled the mean down
 B. Most students scored above 75 D. The data has no outliers



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5) What is $\frac{5}{8} \div \frac{5}{6}$?

- A. $\frac{25}{48}$
 B. 1

- C. $\frac{8}{6}$
 D. $\frac{3}{4}$

6) Expand $12(1 + 4)$.

- A. $12 + 48$
 B. $12 + 4$

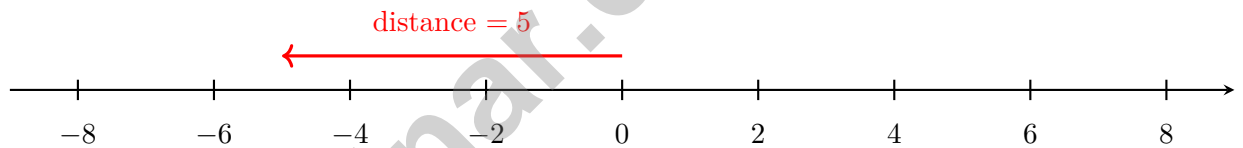
- C. $1 + 4$
 D. 60

7) The opposite of 7 is -7 . Which pair of integers are opposites?

- A. 3 and -3
 B. -5 and -5

- C. 2 and -8
 D. 0 and 1

8)



The opposite of the opposite of -5 is:

- A. 5
 B. 10

- C. 0
 D. -5

9) A container holds 96 fluid ounces of liquid. How many cups does the container hold?



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Alaska AK STAR Practice Test Answer Keys

How to use this section with a Grade 6 student:

1. check the answer first
2. mark questions to try again
3. rework the problem before reading the full explanation

A calm correction routine turns every missed item into useful practice.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** **(6.EE.3)** With students on the x -axis and desks on the y -axis, the first row of the table (4 students, 2 desks) becomes the ordered pair (4, 2).
- 2) **Choice C is correct.** **(6.G.3)** Simplify the first ratio in the pair: 4 : 8 becomes 1 : 2. Since 1 : 2 is not the same as 1 : 3, this pair is not equivalent.
- 3) **Choice B is correct.** **(6.SP.4)** From the double number line, 1 hour equals 60 minutes. This is the standard conversion rate.
- 4) **Choice B is correct.** **(6.RP.1)** Commission is 5% of \$2000 = $0.05 \times 2000 = \$100$.
- 5) **Choice C is correct.** **(6.RP.3)** Person A: 20% of \$800 = $0.20 \times 800 = \$160$. Person B: 40% of \$400 = $0.40 \times 400 = \$160$. Both save \$160.
- 6) **Choice B is correct.** **(6.EE.9)** Data: 1, 2, 2, 3, 3, 3, 4, 4, 5. The median (middle of 9 values) is the 5th value: 3.
- 7) **Choice A is correct.** **(6.SP.4)** 50% of 200 is $0.50 \times 200 = 100$ customers.
- 8) **Choice A is correct.** **(6.EE.8)** Simplify each team's ratio. Panthers have 12 : 8 = 3 : 2, Tigers have 9 : 6 = 3 : 2, and Lions have 6 : 5. Only Panthers and Tigers match.
- 9) **Choice B is correct.** **(6.SP.5)** If $\frac{3}{4}$ of the wall takes 6 hours, then the unit rate is $6 \div \frac{3}{4} = 6 \times \frac{4}{3} = 8$ hours for the whole wall.
- 10) **Choice B is correct.** **(6.SP.6)** Each row maintains the ratio 2 : 3. Row 1: 8 : 12 = 2 : 3 (divide by 4). Row 2: 10 : 15 = 2 : 3 (divide by 5). Row 3: 12 : 18 = 2 : 3 (divide by 6). All rows have the ratio 2 : 3.
- 11) **Choice D is correct.** **(6.G.1)** $40\% = \frac{40}{100} = 40$ out of 100 squares.
- 12) **Choice C is correct.** **(6.RP.3)** Unit price: $12 \div \frac{3}{4} = 12 \times \frac{4}{3} = 16$ dollars per pound.
- 13) **The correct answer is 50.** **(6.NS.3)** Area = $\frac{1}{2}(12 + 8) \times 5 = \frac{1}{2}(20)(5) = 50 \text{ cm}^2$.
- 14) **Choice D is correct.** **(6.SP.4)** Multiply: $120 \times 1000 = 120,000$ meters.
- 15) **Choice D is correct.** **(6.EE.1)** If Food : Rent = 2 : 5 and Food = \$300, then $\frac{\$300}{\text{Rent}} = \frac{2}{5} \Rightarrow \text{Rent} = \frac{\$300 \times 5}{2} = \$750$.
- 16) **The correct answer is (3, 2).** **(6.EE.4)** Reflection over the y -axis negates the x -coordinate: $(-3, 2) \rightarrow (3, 2)$.
- 17) **Choice A is correct.** **(6.EE.3)** Plan A: $c = 30m$ (passes through origin, proportional). Plan B: $c = 10m + 20$ (has constant term, not proportional because when $m = 0$, $c = 20 \neq 0$).
- 18) **Choice A is correct.** **(6.EE.5)** Divide the actual length by the scale: 91 feet \div 7 feet/inch = 13 inches.
- 19) **Choice B is correct.** **(6.SP.4)** $\frac{1}{2} \div 8 = \frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$ cup per serving.
- 20) **Choice A is correct.** **(6.EE.8)** $4,725 \div 15 = 315$. Each classroom receives 315 pencils.
- 21) **Choice D is correct.** **(6.RP.3)** We have $1 + 1 = 2$ decimal places total. So 480 becomes 4.80.
- 22) **The correct answer is Statements B, C, and E are correct: Time is the independent variable (you choose how long to run); the equation is $d = 8t$; and the constant rate is 8 mph..** **(6.EE.9)** Correct: B (time is independent—you control it), C (equation $d = 8t$ is correct), and E (the rate is indeed 8 mph). Incorrect: A (distance depends on time), D (reverses the relationship).
- 23) **Choice D is correct.** **(6.G.1)** Looking at the table, the first number that appears in both rows is 60. This is the least common multiple.
- 24) **Choice B is correct.** **(6.G.5)** GCF of 20 and 16 is 4. So $20 + 16 = 4(5 + 4)$. Only Choice B uses the GCF with whole numbers.
- 25) **Choice B is correct.** **(6.SP.2)** Moving left means subtracting. The number is $-2 - 5 = -7$.
- 26) **Choice D is correct.** **(6.SP.2)** Point Q is at (1, 4). When reflected across the x -axis, the x -coordinate stays the same and the y -coordinate changes sign, giving (1, -4).
- 27) **Choice C is correct.** **(6.NS.1)** $-\frac{1}{4} = -0.25 > -\frac{1}{2} = -0.5$. All other choices are less than $-\frac{1}{2}$.
- 28) **Choice A is correct.** **(6.NS.8)** Same x -coordinate (0): $|a - (-5)| = 8$, so $|a + 5| = 8$. Thus $a + 5 = 8$ or $a + 5 = -8$, giving $a = 3$ or $a = -13$.



Hi, Math Champion!

◇ You trained hard! 10 full practice tests is real practice. Your math game is way better now than when you started. ◇

★ **Coach's truth:** kids who practice get better. You practiced. You got better. That's how it works!
★

Your Game Stats

- **Energy:** HIGH! You can finish a long test.
- **Smart Plays:** You know lots of strategies.
- **Calm Head:** You stay cool with hard problems.
- **Game-Day Ready:** You feel strong and prepared.

Coach's tip: the night before the test, get good sleep. Eat a good breakfast. Bring a sharp pencil. Trust your training!

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

Jay Daie

Your Math Coach

PRACTICE MORE. ACHIEVE MORE. SUCCEED!

This **Grade 6 Math Practice Tests** book is designed to help students build strong math skills, deepen their understanding of key concepts, and gain the confidence they need to succeed on any test.

With 10 full-length printed tests and 2 online tests, students get the review, practice, and realistic test experience they need to improve accuracy, strengthen problem-solving abilities, and reach their full potential.

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



**CONFIDENCE TODAY.
SUCCESS 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.



Deepen Understanding

Reinforce key math concepts 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
- ✓ 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.

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DETAILED ANSWER
EXPLANATIONS