

5

Alaska

AK STAR

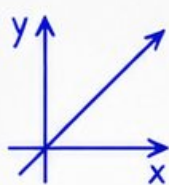
GRADE

7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs



$$y = mx + b$$

$$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$$



$$V = \pi r^2 h$$



5

 PRINTED TESTS

2

 ONLINE TESTS

USE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTS
FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.



Build
Confidence



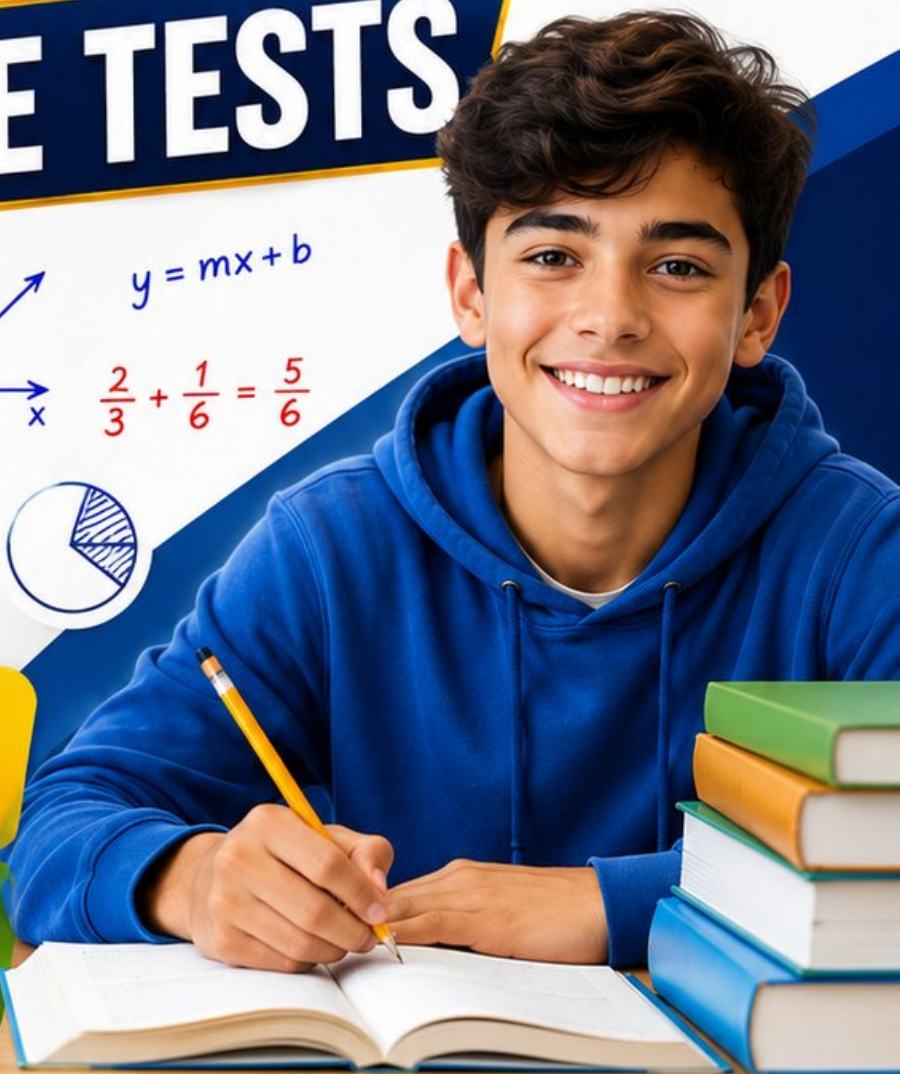
Strengthen
Math Skills



Detailed Answers
& Explanations

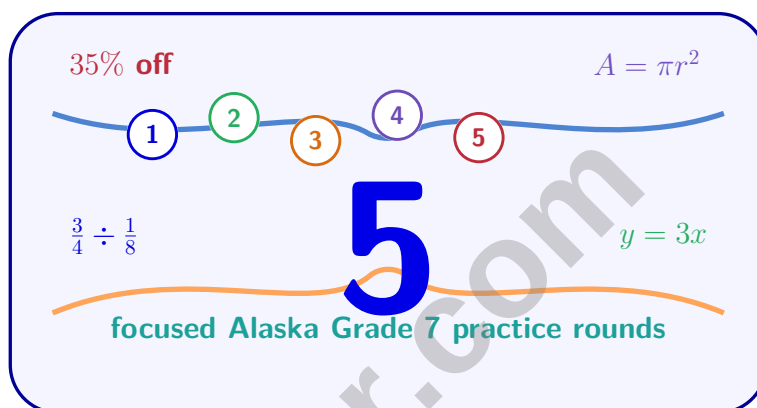


Improve Test
Performance



5 Alaska AK STAR Grade 7 Math Practice Tests

Focused Grade 7 Review with Keys, Explanations, and Mixed Practice



Five complete 40-question Grade 7 AK STAR practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Alaska Grade 7 Problem Solver!

Five focused rounds for sharper AK STAR math thinking

This book gives you five full Grade 7 AK STAR math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, and explain your thinking with care.

Your Alaska Practice Promise

I will read every question carefully, choose a strategy that fits, write enough work to prove my answer, and use corrections as training for the next test.

Read

Model

Verify

How to Use This Book

A five-session plan for confident Grade 7 review

1. **Warm up with the review pages.** Notice the big ideas before starting the tests.
2. **Complete one test at a time.** Treat each 40-question round like a real practice session.
3. **Show your reasoning.** Jot a proportion, equation, diagram, number line, or quick estimate when it helps.
4. **Correct actively.** Rework missed items before reading the explanation.
5. **Choose the next target.** After each test, name one skill and one habit to improve.

Alaska review rhythm: Work a test, score it, study your misses, then come back ready for the next round with one clear goal.



What Is Inside?

Five AK STAR tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 3–5	Expressions, equations, inequalities, scale drawings, geometry, data, probability, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



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& answers

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- 1) A dot plot shows the number of errors on practice tests for two students. Student M: 2, 2, 3, 3, 3, 3, 4, 4, 5; Student N: 1, 1, 4, 5, 6, 7. Which student has more consistent test performance?

- ☐ A. Student M (most tests have 3 errors, range 3)
☐ B. Student N (fewer total errors on some tests)
☐ C. Both students perform identically
☐ D. Student N (fewer errors overall)

- 2) A student deposits money into an account earning 6% simple interest. After 4 years, the total is \$2480. What was the original deposit?

- ☐ A. \$1800
☐ B. \$1950
☐ C. \$2000
☐ D. \$2200

- 3) A cyclist travels $\frac{5}{6}$ mile in $\frac{1}{4}$ hour. Find the cyclist's speed in miles per hour.

- 4) On a map where 2.5 cm represents 50 km, how many kilometers does 1 cm represent?



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5) A robot starts at position 0 on a number line. It moves left 8 units, then right 3 units. What is its final position?

☐ A. -11☐ C. 5☐ B. -5☐ D. 11

6) A laptop originally sells for \$1200. After a 15% discount and applying 8% sales tax on the discounted price, what is the final cost?

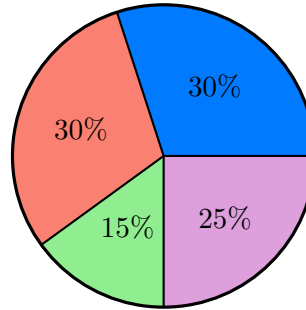
☐ A. \$1062☐ C. \$1080☐ B. \$1020☐ D. \$1102.40

7) Compute $-28 + (-15)$.

☐ A. -43☐ C. 13☐ B. -13☐ D. 43

8) Simplify: $-\frac{1}{2}a + \frac{3}{2}a - a$

☐ A. a ☐ C. $\frac{1}{2}a$ ☐ B. 0☐ D. $2a$ 



9)

The circle graph shows movie genre preferences. Blue is action (30%), salmon is drama (30%), green is comedy (15%), and purple is thriller (25%). If 1200 people were surveyed, how many prefer drama?

☐ A. 180☐ C. 360☐ B. 300☐ D. 600

10) A garden uses 2 gallons of water per square foot of plants. How much water is needed for 12 square feet?

☐ A. 6 gallons☐ C. 36 gallons☐ B. 12 gallons☐ D. 24 gallons**Scan me!**For more practice
& answers

- 1) An electronics store has a clearance sale offering 35% off all items. If a laptop is originally \$1 200, what is the sale price?

- ☐ A. \$420 ☐ C. \$835
☐ B. \$1 035 ☐ D. \$780

- 2) What is the greatest common numerical factor of $14ab$ and $21a$?

- 3) Two painters work at different rates. Painter A completes $\frac{1}{2}$ wall in $\frac{1}{3}$ day. Painter B completes $\frac{2}{3}$ wall in $\frac{1}{2}$ day. Who paints faster?

Painter	Walls per day
A	$\frac{1/2}{1/3} = ?$
B	$\frac{2/3}{1/2} = ?$

- ☐ A. Same rate ☐ C. Painter B at $\frac{4}{3}$ walls/day
☐ B. Painter B is faster ☐ D. Painter A at $\frac{3}{2}$ walls/day
- 4) A bike rental costs \$2.50 per hour. If h is the number of hours and c is the total cost, what is the constant of proportionality in the equation $c = kh$?
- ☐ A. 1.0 ☐ C. \$5.00
☐ B. 0.40 ☐ D. 2.5

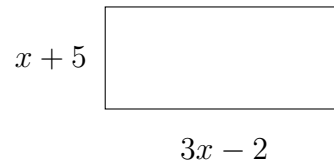


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- 5) A triangular prism has two triangular bases, each with base 12 cm and height 9 cm (isosceles triangle). The prism extends 10 cm. Assuming the two equal sides of the triangle are each 10.8 cm, what is the approximate surface area?
- ☐ A. 108 cm^2 ☐ C. 444 cm^2
☐ B. 216 cm^2 ☐ D. 540 cm^2
- 6) Which inequality represents “a number decreased by 10 is less than or equal to 25”?
- ☐ A. $n - 10 \leq 25$ ☐ C. $10 - n \leq 25$
☐ B. $n - 25 \leq 10$ ☐ D. $n \leq 35$
- 7) To simulate drawing a card from a standard deck and finding whether it is a heart (probability $\frac{1}{4}$), which spinner design is best?
- ☐ A. Spinner with 2 equal sections (one shaded, one not) ☐ C. Spinner with 6 equal sections (two shaded, four not)
☐ B. Spinner with 4 equal sections (one shaded, three not) ☐ D. Spinner with 13 equal sections (one shaded, twelve not)
- 8) A parallelogram is reflected over the x -axis. If one vertex moves from $(-4, 3)$ to $(-4, -3)$, which transformation property is demonstrated?
- ☐ A. The x -coordinate stays the same; the y -coordinate is negated ☐ C. Both coordinates are negated
☐ B. The y -coordinate stays the same; the x -coordinate is negated ☐ D. The distance from the origin is doubled



- 1) A rectangle's sides are $(x + 5)$ and $(3x - 2)$. What is the perimeter?



- ☐ A. $8x + 6$ ☐ C. $8x + 3$
☐ B. $4x + 3$ ☐ D. $8x - 6$
- 2) Simplify: $t^4 \cdot t^6$
- ☐ A. t^2 ☐ C. t^{24}
☐ B. t^{10} ☐ D. $2t^{10}$
- 3) A proportional relationship is defined by $y = 3.5x$. What is the value of y when $x = 4$?
- ☐ A. 3.5 ☐ C. 14
☐ B. 7.5 ☐ D. 14.5
- 4) If 18% of a number is 36, what is the number?
- ☐ A. 150 ☐ C. 200
☐ B. 180 ☐ D. 250
- 5) Which expression is equivalent to $8 - 3$?
- ☐ A. $8 + 3$ ☐ C. $-8 + 3$
☐ B. $8 + (-3)$ ☐ D. $3 - 8$



6) What is $-36 \div (-9)$?

☐ A. -4

☐ B. -3

☐ C. 3

☐ D. 4

7) What is $\frac{17}{50}$ as a decimal?

☐ A. 0.17

☐ B. 0.34

☐ C. 0.51

☐ D. 0.74

8) Maria has a bank account balance of \$145.50. She withdraws \$28.75, then deposits \$52.25. What is her new balance?

☐ A. \$116.75

☐ B. \$118.75

☐ C. \$169.00

☐ D. \$226.50

9) A meal delivery service charges a subscription fee of \$35 and \$4.99 per meal. If the total monthly cost is \$84.85, which equation represents m , the number of meals?

☐ A. $35m + 4.99 = 84.85$

☐ B. $4.99 + 35m = 84.85$

☐ C. $35(m + 4.99) = 84.85$

☐ D. $4.99m + 35 = 84.85$

10) Which value makes $2(x + 5) = 18$ true?

☐ A. $x = 2$

☐ B. $x = 4$

☐ C. $x = 5$

☐ D. $x = 9$



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Alaska AK STAR Grade 7 Practice Test Answer Keys**How to use this section with a Grade 7 student:**

1. check the answer first and circle any item that needs another look
2. retry the problem with fresh work before reading the explanation
3. write one short lesson learned from each missed or guessed item

A strong review routine turns every correction into a sharper plan for the next Alaska AK STAR practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (7.SP.3) Student M's errors concentrate at 2–4 with peak at 3 and range 3 (2–5). Student N's errors vary widely from 1–7 (range 6), showing inconsistent performance.
- 2) **Choice C is correct.** (7.RP.3) $A = P + I \Rightarrow 2480 = P + P(0.06)(4) \Rightarrow 2480 = P + 0.24P = 1.24P \Rightarrow P = \2000 .
- 3) **The correct answer is 10/3 mph.** (7.RP.1-7.RP.3) Unit rate = $\frac{5/6}{1/4} = \frac{5}{6} \times 4 = \frac{20}{6} = \frac{10}{3} = 3\frac{1}{3}$ mph.
- 4) **The correct answer is 20.** (7.RP.1-7.RP.3) If 2.5 cm = 50 km, then 1 cm = $50 \div 2.5 = 20$ km.
- 5) **Choice B is correct.** (7.NS.1-7.NS.3) Moving left 8 units: $0 - 8 = -8$. Moving right 3 units: $-8 - (-3) = -8 + 3 = -5$. Or: $-8 + 3 = -5$.
- 6) **Choice D is correct.** (7.RP.3) After discount: $1200 - 0.15(1200) = \$1020$. Tax: $0.08(1020) = \$81.60$. Final: $1020 + 81.60 = \$1102.40$.
- 7) **Choice A is correct.** (7.NS.1b) Both numbers are negative; add absolute values: $|-28| + |-15| = 28 + 15 = 43$, and keep the negative sign: -43 .
- 8) **Choice B is correct.** (7.EE.1) Combine: $-\frac{1}{2}a + \frac{3}{2}a - a = -\frac{1}{2}a + \frac{3}{2}a - \frac{2}{2}a = \frac{-1+3-2}{2}a = \frac{0}{2}a = 0$.
- 9) **Choice C is correct.** (7.SP.1-7.SP.4) 30% of 1200 = $0.30 \times 1200 = 360$ people.
- 10) **Choice D is correct.** (7.RP.1-7.RP.3) Proportion: $\frac{2 \text{ gal}}{1 \text{ sq ft}} = \frac{y}{12 \text{ sq ft}}$. Cross multiply: $y = 24$ gallons.
- 11) **Choice D is correct.** (7.RP.3) Account B at 6% earns more growth than Account A at 4% over the same period. The chart reflects this with the higher bar for Account B at Month 6.
- 12) **Choice A is correct.** (7.NS.1-7.NS.3) Earnings = $\$8.50 \times 4.5 = \38.25 .
- 13) **Choice A is correct.** (7.NS.1-7.NS.3) Move the decimal 4 places right from the first nonzero digit: $0.00042 \rightarrow 4.2$. Exponent is -4 .
- 14) **The correct answer is \$90.** (7.RP.3) If $18 = 0.20 \times b$, then $b = \frac{18}{0.20} = 90$ dollars.
- 15) **Choice C is correct.** (7.EE.1-7.EE.2) Sum of x and y is $(x + y)$. Quotient by 3 is $\frac{x+y}{3}$.
- 16) **Choice D is correct.** (7.RP.1-7.RP.3) Rate is $\frac{200 \text{ oz}}{4 \text{ sec}} = 50$ ounces per second.
- 17) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate is $(1, 0.35)$, so $k = 0.35$ kg per tablet. For 8 tablets: $8 \times 0.35 = 2.8$ kg.
- 18) **Choice D is correct.** (7.RP.3) On a proportional double number line, the ratio is constant: $\frac{60}{75} = \frac{4}{5}$. For 25: set up $\frac{25}{x} = \frac{75}{60}$, so $x = 20$.
- 19) **Choice B is correct.** (7.NS.1-7.NS.3) Common denominator is 12: $\frac{9}{12} - \frac{2}{12} = \frac{7}{12}$.
- 20) **The correct answer is A,C.** (7.RP.1-7.RP.3) From the table, $k = 14/2 = 7$, so A is true and the equation is $y = 7x$ (C is true). B is false: $k = 7$, not 2.8. D is false: when $x = 10$, $y = 7 \cdot 10 = 70$, not 68.
- 21) **Choice A is correct.** (7.NS.1-7.NS.3) $-\frac{3}{5} \div (-\frac{2}{3}) = (-\frac{3}{5}) \times (-\frac{3}{2}) = \frac{9}{10}$. Negative divided by negative is positive.
- 22) **Choice A is correct.** (7.NS.2d) Divide $2 \div 25 = 0.08$. Since $25 = 5^2$, this terminates.
- 23) **Choice A is correct.** (7.NS.1-7.NS.3) Rate: $\frac{3}{4} \div 6 = \frac{3}{4} \times \frac{1}{6} = \frac{3}{24} = \frac{1}{8}$ pool per hour.
- 24) **Choice C is correct.** (7.SP.5-7.SP.8) Spinner: 5 outcomes. Coin: 2 outcomes. Total: $5 \times 2 = 10$ outcomes.
- 25) **Choice A is correct.** (7.NS.2) $-\frac{5}{8} \times \frac{4}{3} = -\frac{5 \times 4}{8 \times 3} = -\frac{20}{24} = -\frac{5}{6}$ (simplified). Negative times positive is negative. GCD(20,24)=4, so $\frac{20}{24} = \frac{5}{6}$.
- 26) **Choice B is correct.** (7.NS.1-7.NS.3) $7 \times 7 = 49$, so $\sqrt{49} = 7$.
- 27) **Choice B is correct.** (7.EE.1-7.EE.2) $x - 0.02x = (1 - 0.02)x = 0.98x$. A 2% discount leaves 98% of the original.
- 28) **Choice D is correct.** (7.RP.3) Commission = $0.35 \times 50 = \$17.50$.
- 29) **Choice C is correct.** (7.RP.1-7.RP.3) Scale: 1 cm = 2 m. For 8 m: $\frac{1}{2} = \frac{x}{8}$, so $x = 4$ cm.
- 30) **Choice C is correct.** (7.G.4-7.G.6) The L-shape is split into two rectangles: one is 7×5 , the other is 3×3 . Add their areas: $35 + 9 = 44 \text{ m}^2$.



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Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 7 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 7 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **5** full-length Math practice tests and **2** online tests to help Grade 7 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:

5 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answers & Explanations



MORE PRACTICE. GREATER RESULTS.

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

WHAT YOU'LL GAIN



Build Confidence

Practice regularly to feel prepared and test-ready.



Strengthen Math Skills

Develop key math concepts and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Boost Performance

Apply your knowledge and achieve your best score!

TOPICS COVERED

- ✓ Ratios & Proportions
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Percents & Decimals
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
- ✓ And More!



2 ONLINE TESTS

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



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!



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