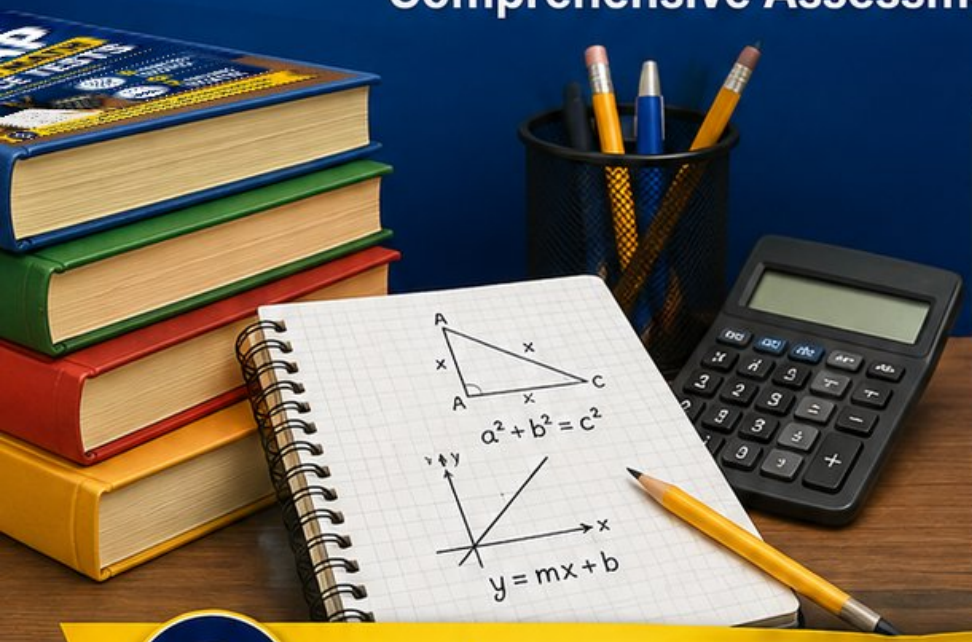
6 Kansas KAP

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For Comprehensive Assessment Programs



6 PRINTED TESTS

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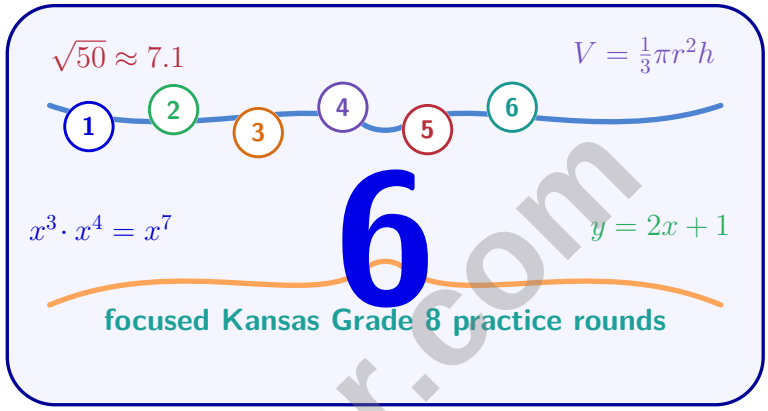
2 ONLINE TESTS

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

6 Kansas KAP Grade 8 Math Practice Tests

Grade 8 Math Prep for Functions, Expressions, Geometry, and Statistics



Six complete 40-question Grade 8 KAP practice rounds with real numbers, exponents, scientific notation, equations, functions, transformations, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari

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Welcome, Kansas Grade 8 Problem Solver!

Six focused rounds for sharper KAP math thinking

This book gives you six full Grade 8 KAP math practice tests. Each round is built to help you recognize structure, reason with real numbers and exponents, analyze linear relationships, connect equations with graphs, and explain your thinking with care.

Your Kansas 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.

How to Use This Book

A six-session plan for confident Grade 8 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 an exponent rule, equation, graph, transformation, diagram, 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.

Kansas 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?

Six KAP tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

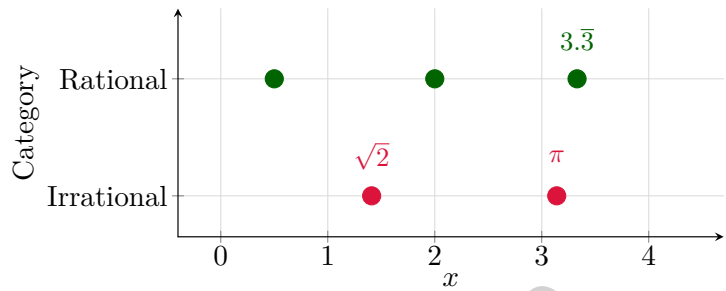
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.

Table of Contents

1) $(8 \times 10^4) \times (9 \times 10^5) = ?$

- ☐ A. 72×10^7
- ☐ B. 0.72×10^{10}
- ☐ C. 17×10^9
- ☐ D. 7.2×10^{10}

2)



Which number should be plotted as irrational (height 0)?

- ☐ A. 0.5
- ☐ B. 2
- ☐ C. $3.\overline{3}$
- ☐ D. $\sqrt{5}$

3) A student claims $\sqrt{50}$ is between 5 and 6 because 50 is between 5 and 6. What is the student's error?

- ☐ A. Correct reasoning
- ☐ B. Should use 7 and 8 instead
- ☐ C. $\sqrt{50}$ is actually an integer
- ☐ D. Should compare 50 to perfect squares, not integers

4) Which is the best estimate of $\sqrt{99}$?

- ☐ A. 9.0
- ☐ B. 49.5
- ☐ C. 10.0
- ☐ D. 9.5

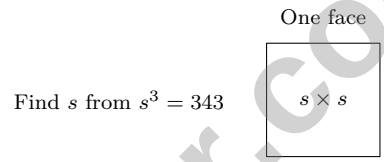
5) A savings account earns 2% simple interest annually. If you deposit \$6,000, how much will you have after 2 years?

☐ A. \$6,120
☐ B. \$6,180
☐ C. \$6,240
☐ D. \$6,300

6) A scientist measures a particle with mass $m = 10^{-6}$ kilograms. Rewrite this as a fraction.

☐ A. $\frac{1}{6}$ kg
☐ B. -10^{6} kg
☐ C. 10^{6} kg
☐ D. $\frac{1}{10^{6}}$ kg

7) If the volume of a cube is 343 cm^3, what is the surface area of one face?

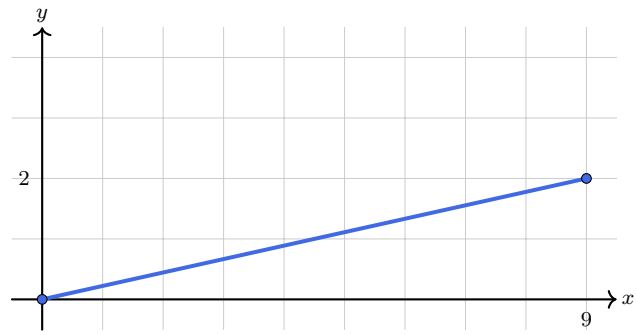


☐ A. 7 cm^2
☐ B. 294 cm^2
☐ C. 98 cm^2
☐ D. 49 cm^2

8) Convert 42,000 to scientific notation.

☐ A. 4.2×10^{3}
☐ B. 4.2×10^{5}
☐ C. 42×10^{2}
☐ D. 4.2×10^{4}

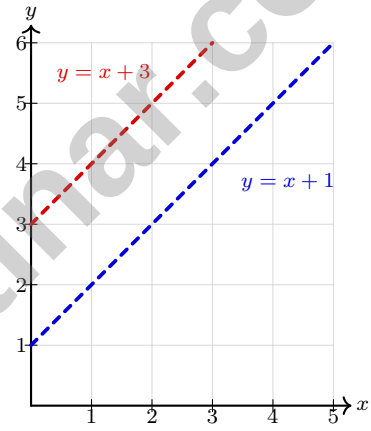
9)



The slope is approximately:

☐ A. 0.18
☐ B. 9
☐ C. 4.5
☐ D. 0.22

10) The two lines on the graph below are parallel. Which system do they represent?



☐ A. $y = x + 1$ and $y = x + 3$
☐ B. $y = x + 1$ and $y = -x + 3$
☐ C. $y = 2x + 1$ and $y = 2x + 3$
☐ D. $y = x + 1$ and $y = x + 1$

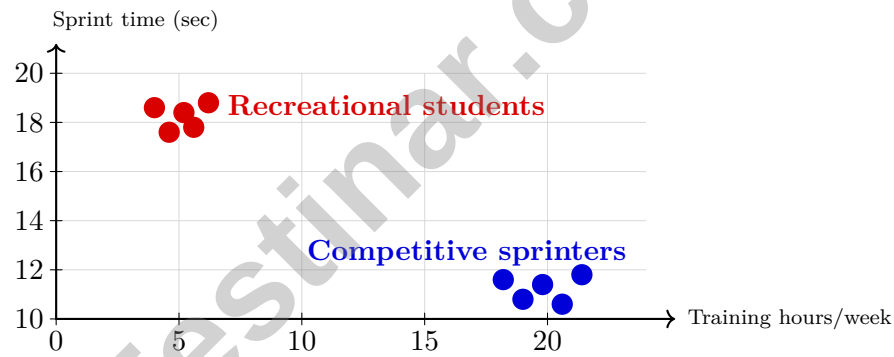
1) A cell phone plan costs $20 per month plus $0.10 per text message. If cost is graphed against number of texts sent (x-axis texts, y-axis cost in $), what is the slope?

☐ A. $20 per text
☐ B. $20.10 per text
☐ C. 20 texts per dollar
☐ D. $0.10 per text

2) A triangle is dilated by a scale factor of 4. Which statement is true?

☐ A. Each angle is multiplied by 4
☐ B. The angles remain the same
☐ C. Each angle is divided by 4
☐ D. The shape becomes a different type of polygon

3) A scatter plot compares weekly training time and sprint time for two groups. Red points represent recreational students, and blue points represent competitive sprinters. Which statement best describes the graph?



☐ A. All points form one cluster
☐ B. The points are randomly scattered
☐ C. Both groups follow the same pattern
☐ D. The groups form two separate clusters

4) A two-way table shows 160 athletes:

	Morning	Evening	Total
Track	50	30	80
Swim	35	45	80
Total	85	75	160

What percentage of all athletes train in the morning on the track team?

☐ A. 31.25%
☐ B. 37.5%
☐ C. 58.8%
☐ D. 62.5%

5)

Sales	$100	$150	$200	$250	$300

Five days of sales shown. Mean = $200. What is the MAD?

☐ A. $40
☐ B. $50
☐ C. $60
☐ D. $75

6) If two dice are rolled, what is the probability of getting at least one 4?

☐ A. $\frac{1}{6}$
☐ B. $\frac{11}{36}$
☐ C. $\frac{6}{36}$
☐ D. $\frac{25}{36}$

7) A restaurant offers 10 appetizers, 12 mains, 5 sides, and 6 desserts. A complete meal includes one appetizer, one side, and one dessert. How many different complete meals can be ordered?

☐ A. $10 + 5 + 6 = 21$
☐ B. $10 \times 12 \times 5 \times 6 = 3{,}600$
☐ C. $10 \times 5 \times 6 = 300$
☐ D. $(10 + 12) \times 5 \times 6 = 660$

1) Which interval contains $2 + \sqrt{3}$?

☐ A. Between 2 and 3
☐ B. Greater than 5
☐ C. Between 4 and 5
☐ D. Between 3 and 4

2) The equation $y = 12x + 50$ represents a driver's earnings in dollars, where x is the number of hours worked. What does the slope 12 represent?

☐ A. Hourly wage of \$12
☐ B. Total earnings of \$12
☐ C. Initial debt of \$12
☐ D. Number of hours worked

3) Solve $-4(x + 1) < 12$. What is the boundary value?

4) Does a triangle with sides $6, 8, 9$ form a right triangle?

☐ A. Yes, because $6 + 8 > 9$
☐ B. No, because $6^2 + 8^2 \neq 9^2$
☐ C. Yes, because it is a Pythagorean triple
☐ D. No, because the sides are different lengths

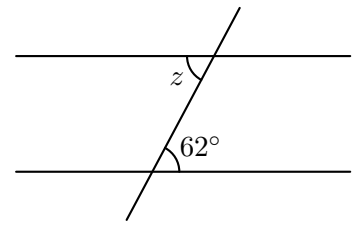
5) If a regular polygon has each exterior angle equal to $24°$, how many sides does it have?

☐ A. 20
☐ B. 12
☐ C. 18
☐ D. 15

6) Triangle ABC is similar to Triangle DEF. Side $AB = 4$ cm, $BC = 5$ cm, $CA = 6$ cm. The perimeter of DEF is 45 cm. Find the length of EF.

☐ A. 15 cm
☐ B. 18 cm
☐ C. 22.5 cm
☐ D. 10 cm

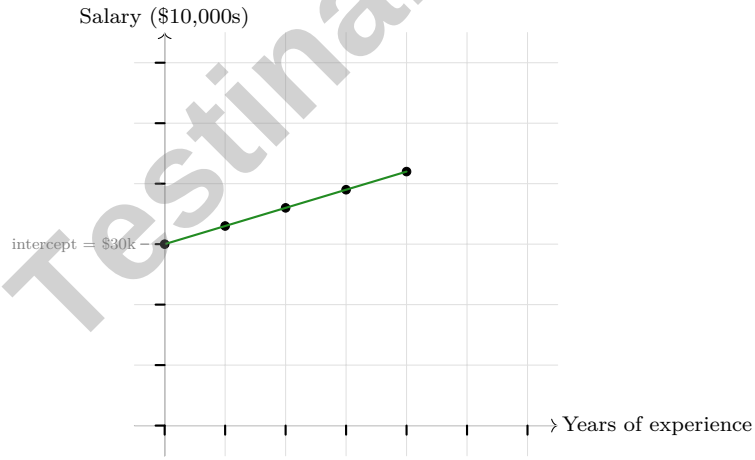
7)



Two parallel lines are cut by a transversal. The angle marked 62° and angle z are alternate interior angles. What is z?

☐ A. 28°
☐ B. 62°
☐ C. 118°
☐ D. 148°

8)



What is the rate of salary increase per year of experience?

☐ A. $1000 per year
☐ B. $3000 per year
☐ C. $6000 per year
☐ D. $10000 per year

Kansas KAP Grade 8 Practice Test Answer Keys

How to use this section with a Grade 8 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 Kansas KAP practice test.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice D is correct.** 8.EE.3 Multiply coefficients: $8 \times 9 = 72 = 7.2 \times 10^1$. Add exponents: $10^{4+5} = 10^9$. Combine: $7.2 \times 10^1 \times 10^9 = 7.2 \times 10^{10}$.
2) **Choice D is correct.** 8.NS.1 Only $\sqrt{5}$ is irrational (a square root of a non-perfect square). The others are rational: $0.5 = \frac{1}{2}$, 2 is an integer, and $3.\overline{3} = \frac{10}{3}$.
3) **Choice D is correct.** 8.NS.2 The student confused the radicand 50 with the value of $\sqrt{50}$. Since $49 < 50 < 64$ (i.e., $7^2 < 50 < 8^2$), we have $7 < \sqrt{50} < 8$, not $5 < \sqrt{50} < 6$.
4) **Choice D is correct.** 8.NS.2 $\sqrt{99} \approx 9.95$ (very close to 10). Since $9.9^2 = 98.01$ and $10^2 = 100$, estimate is $9.95 \approx 9.5$ when rounded to tenths. Tests proximity to perfect square 100.
5) **Choice C is correct.** 8.G.8 Interest: $I = 6000 \times 0.02 \times 2 = \$240$. Total: $6000 + 240 = \$6{,}240$.
6) **Choice D is correct.** 8.EE.2 Negative exponent rule: $10^{-6} = \dfrac{1}{10^6}$.
7) **Choice D is correct.** 8.EE.1 Volume $= s^3 = 343$, so $s = \sqrt[3]{343} = 7$ cm. One face is a square with side 7 cm, so area $= 7^2 = 49$ cm^2.
8) **Choice D is correct.** 8.EE.2 Move the decimal 4 places left to get 4.2; the exponent is positive 4. Thus $42{,}000 = 4.2 \times 10^4$.
9) **Choice D is correct.** 8.EE.4 Slope $= \frac{2}{9} \approx 0.222 \approx 0.22$. This is a very shallow line.
10) **Choice A is correct.** 8.F.2 Parallel lines have the same slope but different y-intercepts. Both lines shown have slope 1 but intercepts 1 and 3.
11) **Choice A is correct.** 8.G.1a Find two numbers that multiply to 15 and add to -8: -3 and -5. So $x^2 - 8x + 15 = (x - 3)(x - 5)$.
12) **Choice A is correct.** 8.F.3 A nonlinear function does not form a straight line. This graph shows a parabola (curved shape), characteristic of a quadratic or nonlinear function.
13) **Choice A is correct.** 8.EE.2 Option A: slope $= \dfrac{0-3}{2-0} = \dfrac{-3}{2} = -\frac{3}{2}$.
14) **Choice C is correct.** 8.G.8 Let $a =$ liters of Juice A and $b =$ liters of Juice B. Then $a + b = 40$ and $0.25a + 0.75b = 0.55(40) = 22$. Substitute $b = 40 - a$: $0.25a + 0.75(40 - a) = 22$, so $30 - 0.50a = 22$. Thus $a = 16$ and $b = 24$.
15) **Choice B is correct.** 8.G.11 The pattern shows outputs increase by 4 for every 2-unit increase in x. From $p(4) = 15$, the next value is $p(6) = 15 + 4 = 19$.
16) **Choice D is correct.** 8.G.10 The net shows all 6 faces of a cube. Each face has area $3^2 = 9$ cm^2. Total surface area $= 6 \times 9 = 54$ cm^2.
17) **Choice C is correct.** 8.EE.6 A 90° CCW rotation uses $(x, y) \to (-y, x)$. So $(3, 2) \to (-2, 3)$.
18) **Choice C is correct.** 8.G.8 Volume of a cylinder: $V = \pi r^2 h \approx 3.14 \times 3^2 \times 10 = 3.14 \times 90 = 282.6$ cm^3.
19) **Choice A is correct.** 8.G.9 In slope-intercept form $y = mx + b$, with $m = \frac{2}{5}$ and $b = -3$, we get $y = \frac{2}{5}x - 3$.
20) **The correct answer is A,C.** 8.G.1b Correct: (A) Corresponding angles are congruent — definition of similarity. (C) Corresponding sides are proportional — they scale by a constant factor k. Incorrect: (B) Equal length is congruence, not similarity. (D) Congruence requires equality; similarity allows scaling. (E) Scale factor can be any positive number; $k < 1$ is a reduction, still similarity.
21) **Choice D is correct.** 8.EE.7 Subtract $3x$: $7 = 2$, which is false. No value of x satisfies this equation.
22) **Choice C is correct.** 8.EE.7 Dividing by -6 requires flipping: $x \leq 4$, not $x \geq 4$.
23) **The correct answer is 2 .** 8.SP.2 The largest absolute value among the residuals is 2.
24) **Choice A is correct.** 8.G.9 Substitute $(0, 0)$: $2(0) + 3(0) = 0$ ✓. The origin is on the line.
25) **Choice B is correct.** 8.G.4 Corresponding angles are congruent when a transversal cuts parallel lines. So $v = 68°$.
26) **Choice B is correct.** 8.SP.3 Set $R = 8900$: $8900 = 12x + 500 \Rightarrow 12x = 8400 \Rightarrow x = 700$.
27) **Choice B is correct.** 8.F.1 The range is the set of all distinct y-values: $4, 1, 0, 1, 4$. As a set: $\{0, 1, 4\}$.

Hi, Calm Solver!

◇ This deep and steady book gave you six full Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. A calm mind can see choices more clearly. That matters in Grade 8, where one problem may have several possible entry points. ◇

⋆ **Remember this:** You practiced building calm by doing full tests. Each completed page is rehearsal for staying steady when the real test feels serious. ⋆

Calm-Test Moves

- **Pause:** Give your brain one quiet second.
- **Choose:** Pick the first useful step.
- **Continue:** Do not demand perfection immediately.
- **Check:** Use review time wisely.

Grade 8 test-day tip: If you feel rushed, slow your reading for one sentence. Clear reading saves time.

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

Jay Daie

Your Calm-Test Coach

PRACTICE TODAY. ACHIEVE TOMORROW.

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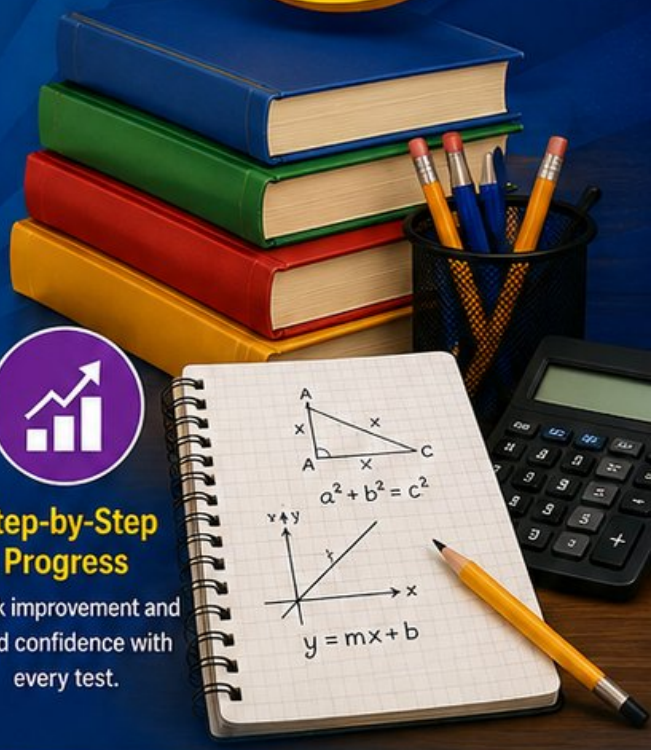
Give your child the confidence and skills they need with **6 full-length Grade 8** Math practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!



WHAT'S INSIDE?

Standards-Aligned Practice
Questions designed to cover essential Grade 8 math standards.

Variety of Question Types
Multiple-choice, short answer, and more to build well-rounded skills.

Real-World Applications
Engaging problems that connect math to everyday life.

Step-by-Step Progress
Track improvement and build confidence with every test.

COVERS ALL ESSENTIAL TOPICS

- The Number System
- Expressions & Equations
- Ratios & Proportional Relationships
- Linear Equations
- Functions
- Geometry
- Statistics & Probability
- Pythagorean Theorem
- Volume & Surface Area
- Transformations
- Inequalities
- Data Analysis & Graphing
- And More!

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