

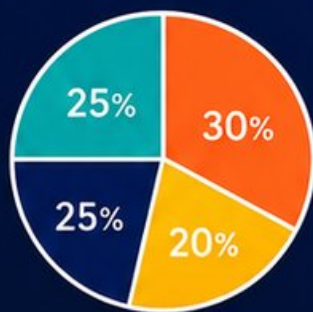
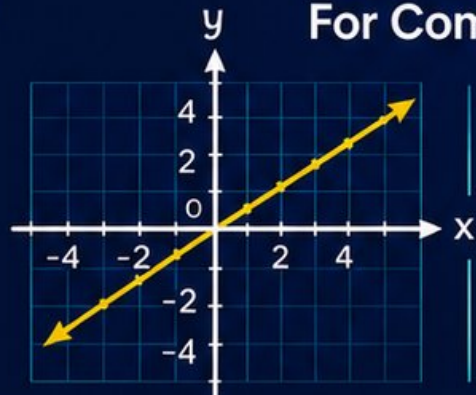
Kansas KAP

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

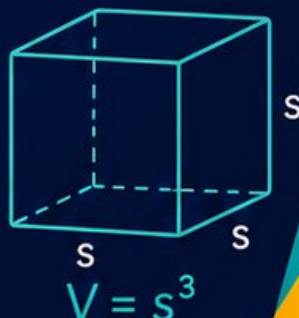


$$y = mx + b$$

$$2x - 3y = 6$$

$$\sqrt{x^2 + y^2}$$

$$A = bh$$



4 PRINTED TESTS



2 ONLINE TESTS

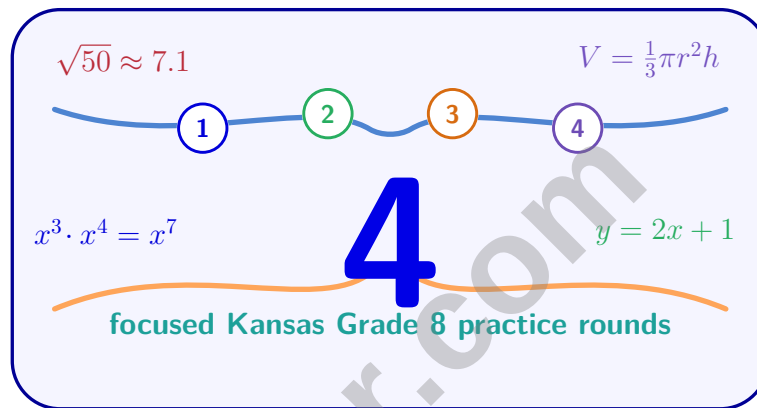


Use these **two additional online practice tests** for extra review after the printed tests in this book.



4 Kansas KAP Grade 8 Math Practice Tests

Four KAP Rounds for Equations, Functions, Geometry, and Data



Four 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!

Four focused rounds for sharper KAP math thinking

This book gives you four 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.

Read

Model

Verify

How to Use This Book

A four-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?

Four KAP tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–4	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.



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1)

Value	7	9	11	13
Deviation	?	1	1	?

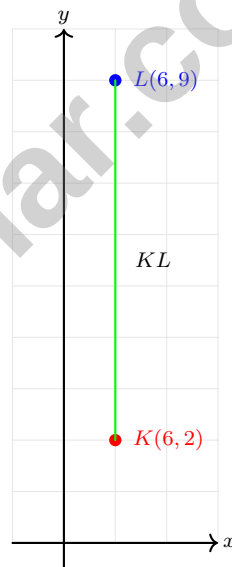
The table shows values and their deviations from the mean. What is the MAD?

☐ A. 1.5☐ C. 2.5☐ B. 2☐ D. 3

2) A car traveling at 60 mph leaves 1 hour before a car traveling at 75 mph. How long does the faster car take to catch the slower car?

☐ A. 2 hours☐ C. 4 hours☐ B. 3 hours☐ D. 5 hours

3) On a coordinate plane, point $K = (6, 2)$ and point $L = (6, 9)$. What is KL ?

☐ A. 7☐ C. $\sqrt{48}$ ☐ B. 6☐ D. 15

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- 4) A residual is the vertical distance between a data point and the trend line. Which set of residuals indicates the BEST fit?
- ☐ A. Residuals of 15, -12, 18, -14, 20 ☐ C. Residuals of -20, -18, 22, 25, 19
- ☐ B. Residuals of -1, 0, 1, 0, -1 ☐ D. Residuals of -5, -4, 3, 4, 2
- 5) Rectangle $PQRS$ has length 10 m and width 6 m. Rectangle $TUVW$ has length 5 m and width 3 m. What is the scale factor from $PQRS$ to $TUVW$?
- ☐ A. 2 ☐ C. 3
- ☐ B. $\frac{1}{2}$ ☐ D. $\frac{1}{3}$
- 6) Given $f(x) = 2x - 5$, what is $f(4)$?
- ☐ A. 11 ☐ C. -1
- ☐ B. 3 ☐ D. 13
- 7) If a is rational and b is irrational, which must be true?
- ☐ A. $a + b$ is rational ☐ C. $b - a$ is rational
- ☐ B. $a \times b$ is rational ☐ D. $a + b$ is irrational
- 8) There are 5 ways to get from building A to building B, and 3 ways to get from B to C. A student writes: "Total routes = $5 + 3 = 8$." Which statement best describes the error?
- ☐ A. The student is correct; addition is the right operation. ☐ C. The student should use factorials: $5! + 3! = 126$.
- ☐ B. The student should multiply because each A-to-B route can be followed by any B-to-C route. ☐ D. The student should use combinations: $\binom{5}{3} = 10$.



9) Convert $0.1\overline{35}$ to a fraction in simplest form.

☐ A. $\frac{1}{135}$
☐ B. $\frac{135}{1000}$

☐ C. $\frac{135}{999}$
☐ D. $\frac{134}{990} = \frac{67}{495}$



10)

Which value belongs at the red mark on the number line?

☐ A. $\sqrt{9}$
☐ B. $\sqrt{20}$

☐ C. $\sqrt{16}$
☐ D. $\sqrt{12}$

11) Which of these is rational?

☐ A. $\sqrt{17}$
☐ B. $\sqrt{19}$

☐ C. $\sqrt{21}$
☐ D. $\sqrt{36}$

12) A vehicle loan of \$25,000 at 6% simple interest for 5 years. What is the total amount to repay?

☐ A. \$25,750
☐ B. \$27,500

☐ C. \$30,000
☐ D. \$32,500

13) What power of 10 completes the conversion $304,000,000 = 3.04 \times$?

☐ A. 10^7
☐ B. 10^6

☐ C. 10^9
☐ D. 10^8



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1) A clothing company models its revenue as $R = 45s - 200$, where R is revenue in dollars and s is the number of shirts sold. Below how many shirts is the company operating at a loss?

- ☐ A. Below 4 shirts
☐ B. Below 5 shirts

- ☐ C. Below 44 shirts
☐ D. Below 200 shirts

2) A ladder leans against a wall. The slope of the ladder line is undefined. What does this indicate?

- ☐ A. The ladder is horizontal
☐ B. The ladder is on the ground

- ☐ C. The ladder is at a 45° angle
☐ D. The ladder is vertical

3) A coffee shop has fixed costs of \$400 per day and variable costs of \$2 per cup sold. If cups sell for \$5 each, about how many cups must be sold to break even?

- ☐ A. 100 cups
☐ B. 120 cups

- ☐ C. 134 cups
☐ D. 160 cups

4) In a survey of 80 coffee drinkers, 50 add cream and 30 do not. Of those who add cream, 35 are office workers. What is the relative frequency of office workers among cream-adders, rounded to the nearest whole percent?

- ☐ A. 44%
☐ B. 70%

- ☐ C. 62%
☐ D. 56%

5)

Points	20	25	30	35
--------	----	----	----	----

Four games scored as shown. The mean is 27.5 points. What is the MAD?

- ☐ A. 4
☐ B. 5

- ☐ C. 5.625
☐ D. 6.25



- 6) If 5 kilograms of rice cost \$15, what is the unit price (constant of proportionality) in dollars per kilogram?

- 7) Which equation is NONLINEAR?

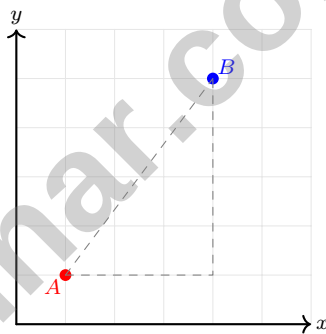
☐ A. $y = -7x$

☐ C. $y = x^4 - 3$

☐ B. $y = 4 - x$

☐ D. $y = \frac{1}{3}x + 2$

- 8) What is the distance between $(-2, 3)$ and $(1, 7)$?



☐ A. 5

☐ C. $\sqrt{21}$

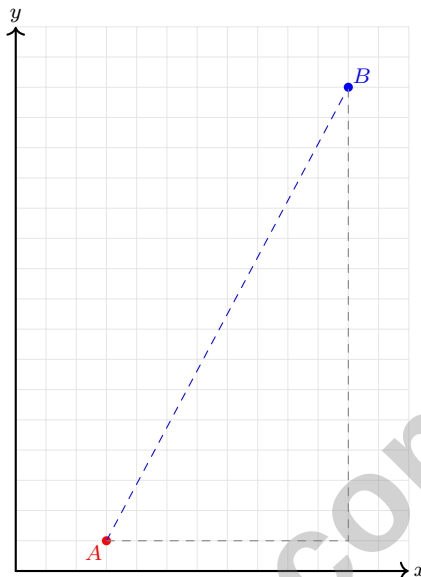
☐ B. 25

☐ D. 4

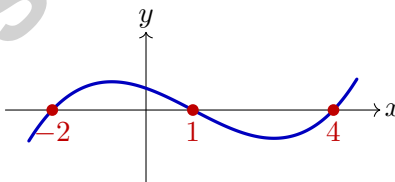


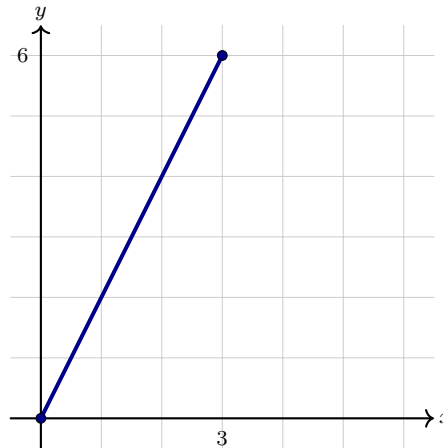
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- 1) An airplane flies from airport $A = (3, 1)$ to airport $B = (11, 16)$. Both coordinates are in hundreds of kilometers. What is the flight distance in hundreds of kilometers?



- ☐ A. 17 (hundred km) ☐ C. $\sqrt{300}$ (hundred km)
☐ B. 24 (hundred km) ☐ D. 25 (hundred km)
- 2) A graph of a function crosses the x -axis at $x = -2$, $x = 1$, and $x = 4$. How many sign intervals do these intercepts create?





3)

What is the slope of the line shown in the graph?

☐ A. $\frac{1}{2}$

☐ C. 3

☐ B. 6

☐ D. 2

4) A student expands $(x - 4)^2$ and gets $x^2 - 16$. What is the error?

☐ A. Missing the middle term.☐ C. Used subtraction instead of FOIL.☐ B. Forgot to square the coefficient of x .☐ D. The answer is correct; there is no error.

5) A line has a slope of $-\frac{1}{2}$ and passes through $(4, 6)$. What is the y -coordinate when $x = 8$?

☐ A. 4

☐ C. 6

☐ B. 8

☐ D. 2



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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.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (8.G.9) Mean = 10. Deviations: $|7 - 10| = 3$, $|9 - 10| = 1$, $|11 - 10| = 1$, $|13 - 10| = 3$. Sum = 8. MAD = $8/4 = 2$.
- 2) **Choice C is correct.** (8.G.8) When the faster car catches up, they've traveled the same distance. Let t = time the faster car travels. The slower car travels $60(t + 1) = 60t + 60$. The faster car travels $75t$. Setting them equal: $75t = 60t + 60$, so $15t = 60$, giving $t = 4$ hours.
- 3) **Choice A is correct.** (8.G.9) Since both points share $x = 6$, the distance is simply $|9 - 2| = 7$.
- 4) **Choice B is correct.** (8.SP.2) Smaller residuals indicate better fit. A set of small residuals close to zero suggests the line passes near all data points.
- 5) **Choice B is correct.** (8.G.1b) Scale factor is the ratio of a side in $TUVW$ to the corresponding side in $PQRS$: $\frac{5}{10} = \frac{1}{2}$.
- 6) **Choice B is correct.** (8.G.11) Substitute $x = 4$: $f(4) = 2(4) - 5 = 8 - 5 = 3$.
- 7) **Choice D is correct.** (8.NS.1) The sum of a rational and an irrational number is always irrational. For example, $2 + \sqrt{3}$ is irrational. Similarly, $b - a$ is irrational, but products can vary.
- 8) **Choice B is correct.** (8.G.4) The student confused independent choices. Each of the 5 A-to-B routes pairs with each of the 3 B-to-C routes, giving $5 \times 3 = 15$ total routes, not $5 + 3 = 8$.
- 9) **Choice D is correct.** (8.G.11) Let $x = 0.1\overline{35} = 0.13535\ldots$. Then $10x = 1.\overline{35}$ and $1000x = 135.\overline{35}$. Subtracting: $990x = 134$, so $x = \frac{134}{990} = \frac{67}{495}$.
- 10) **Choice D is correct.** (8.NS.2) The red mark is between 3 and 4. Since $3^2 = 9$ and $4^2 = 16$: $\sqrt{9} = 3$, $\sqrt{16} = 4$. Only $\sqrt{12}$ satisfies $9 < 12 < 16$, placing it between 3 and 4.
- 11) **Choice D is correct.** (8.NS.2) $\sqrt{36} = 6$ exactly (rational). All others are irrational because 17, 19, 21 are not perfect squares.
- 12) **Choice D is correct.** (8.G.8) Interest: $I = 25000 \times 0.06 \times 5 = \$7,500$. Total: $25000 + 7500 = \$32,500$.
- 13) **Choice D is correct.** (8.EE.2) Moving the decimal 8 places left to get 3.04 gives the exponent 8.
- 14) **The correct answer is 3.** (8.EE.2) Slope = $\frac{14 - 5}{2 - (-1)} = \frac{9}{3} = 3$.
- 15) **Choice C is correct.** (8.G.10) Two equilateral triangle bases: $2 \times \frac{1}{2}(5)(4.3) = 21.5 \text{ cm}^2$. Three rectangular sides: $3 \times (5 \times 7) = 105 \text{ cm}^2$. Total $\approx 21.5 + 105 = 126.5 \text{ cm}^2$.
- 16) **Choice C is correct.** (8.EE.6) A 180° rotation maps each point (x, y) to $(-x, -y)$, which sends Figure A directly onto Figure B. The size is unchanged, so no dilation is involved.
- 17) **Choice D is correct.** (8.EE.7) Subtract 7: $-4y = 8$. Divide by -4 : $y = -2$.
- 18) **Choice D is correct.** (8.EE.7) Subtract 3: $-\frac{1}{2}x \geq 2$. Multiply by -2 (FLIP): $x \leq -4$.
- 19) **The correct answer is 45.** (8.G.1a) Substitute $x = 1$: $(1 + 4)(1 + 8) = 5 \cdot 9 = 45$.
- 20) **The correct answer is A, D.** (8.EE.4) The line goes through $(0, 0)$ and $(8, 4)$, so the slope and constant of proportionality are $\frac{4}{8} = 0.5$. A point on the line must have $y = 0.5x$; when $x = 6$, $y = 3$, so $(6, 3)$ is on the line.
- 21) **Choice C is correct.** (8.G.9) SOLID boundary (includes line) + BELOW shading = $\leq$. Verify: $(0, 0)$ in shaded region: $0 \leq -\frac{1}{2}(0) + 3 = 3$ ✓ TRUE. Distractor A shows algebra error (forgot flip); B shows double error; D shows inverted shading.
- 22) **Choice B is correct.** (8.G.8) Original: $V = \pi r^2 h$. New: $V' = \pi(2r)^2(\frac{h}{2}) = \pi \times 4r^2 \times \frac{h}{2} = 2\pi r^2 h = 2V$.
- 23) **Choice D is correct.** (8.EE.2) $(x^3)^2 = x^6$; then $\frac{x^6}{x^4} = x^2$. Substitute $x = 2$: $2^2 = 4$.
- 24) **Choice C is correct.** (8.EE.1) $18 \times 18 = 324$, so $\sqrt{324} = 18$.
- 25) **Choice C is correct.** (8.EE.3) Check: $\frac{5}{1.5} \approx 3.33$ and $10^{-15 - (-20)} = 10^5$. So the answer is approximately 3.3×10^5 .
- 26) **Choice D is correct.** (8.G.9) Using any two points: $\frac{7-3}{2-0} = \frac{4}{2} = 2$. Same slope for all pairs confirms collinearity.
- 27) **Choice D is correct.** (8.F.2) Subtract the second from the first: $(2x + 3y) - (2x - y) = 11 - 3$, so $4y = 8$, giving $y = 2$. Substitute: $2x - 2 = 3$, so $2x = 5$ and $x = \frac{5}{2}$. Solution: $(\frac{5}{2}, 2)$.



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Hi, Detail Champion!

◇ In Grade 8, small details can change an entire answer: a negative sign, a decimal place, a unit, an exponent, or an inequality symbol. ◇

★ **Remember this:** You practiced noticing those details. That is a serious test skill, and it gets better with every careful review. This version gave you 4 opportunities to rehearse test-day habits. ★

Detail Checks

- **Signs:** Circle negatives before simplifying.
- **Symbols:** Read inequality signs carefully.
- **Decimals:** Line up place values.
- **Units:** Match the unit the question asks for.

Grade 8 test-day tip: Use the final minute on each section for a detail scan, not a full redo.

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

Jay Daie

Your Detail-Check Coach

PRACTICE TODAY, ACHIEVE TOMORROW!

Give your child the confidence and skills they need with **4 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!

4



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
- ✓ Measurement & Data
- ✓ Statistics & Probability
- ✓ Pythagorean Theorem
- ✓ Volume & Surface Area
- ✓ Transformations
- ✓ Inequalities
- ✓ Data Analysis & Graphing
- ✓ And More!



4 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.