

7

Kansas

KAP

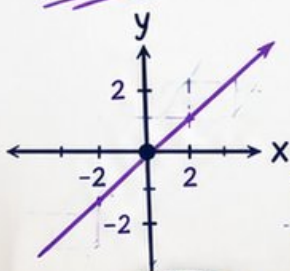
GRADE 8

MATH

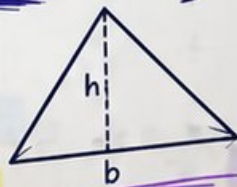
PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

$$y = mx + b$$

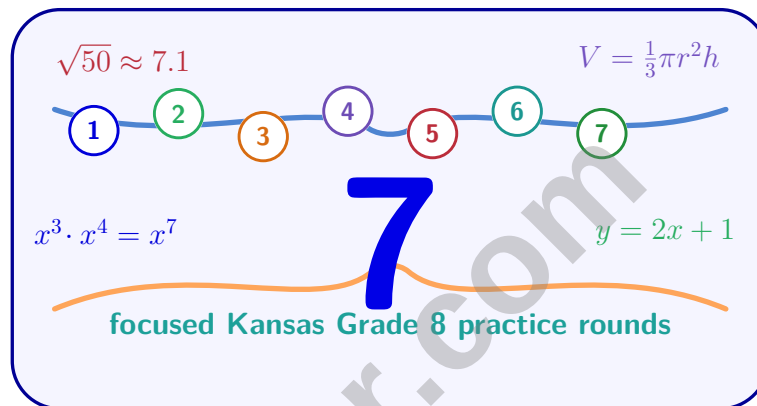
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CONFIDENCE.
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ACE YOUR
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Today
Succeed
Tomorrow!

$$A = \frac{1}{2}bh$$

7 PRINTED
TESTS2 ONLINE
TESTSUse these **two additional** online practice tests
for extra review after the printed tests in this book.

7 Kansas KAP Grade 8 Math Practice Tests

KAP Math Review Across Grade 8 Expressions, Graphs, and Shapes



Seven 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!

Seven focused rounds for sharper KAP math thinking

This book gives you seven 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 seven-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?

Seven KAP tests, 280 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real and irrational numbers, integer exponents, scientific notation, equations, and careful reading.
Tests 4–6	Slope, systems of equations, functions, inequalities, transformations, congruence, and similarity.
Test 7	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
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) An irregular octagon is decomposed into a rectangle (12 m by 8 m) with four congruent right triangles attached to each side (each 2 m by 2 m). What is the total area?

☐ A. 96 m^2

☐ C. 112 m^2

☐ B. 104 m^2

☐ D. 128 m^2

2) What is the range of $\{(-1, 4), (-3, -2), (0, 4), (2, 7), (3, -2)\}$?

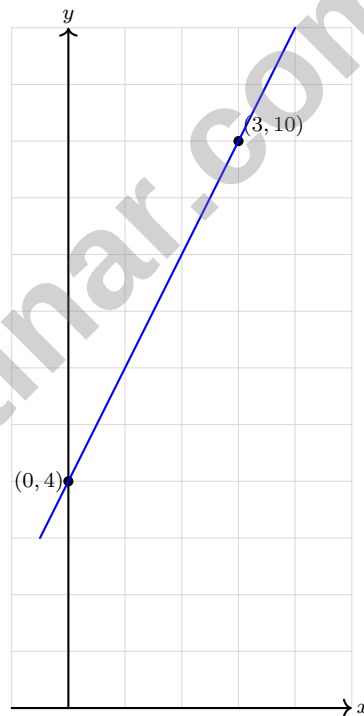
☐ A. $\{-3, -1, 0, 2, 3\}$

☐ C. $\{-2, 4\}$

☐ B. $\{-2, 4, 7\}$

☐ D. $\{-1, 0, 2, 3\}$

3) The graph shows a line passing through $(0, 4)$ and $(3, 10)$.



What is the equation of the line?

☐ A. $y = 2x + 4$

☐ C. $y = 2x + 3$

☐ B. $y = 3x + 4$

☐ D. $y = 4x + 3$



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4) A right triangle has legs of $\sqrt{24}$ and 1. What is the hypotenuse in simplified form?

☐ A. $\sqrt{24}$

☐ B. 5

☐ C. $\sqrt{23}$

☐ D. 25

5) Consider a regular heptagon (7-sided polygon). Which is closest to the measure of each interior angle?

☐ A. $\approx 147^\circ$

☐ B. $\approx 120^\circ$

☐ C. $\approx 138^\circ$

☐ D. $\approx 129^\circ$

6) Triangle P has sides 8, 15, 17. Triangle Q has sides 12, 22.5, 25.5. Are they similar?

☐ A. No, the sides are not equal☐ B. No, the ratios are 1.5, 1.5, 1.5 which is not constant☐ C. Yes, all sides have the same ratio 1.5 to Q 's sides☐ D. Only if corresponding angles equal 90°

7) Solve: $\frac{x-2}{5} \leq 3$

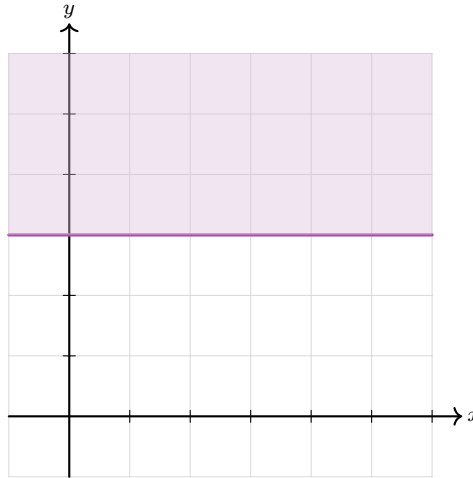
☐ A. $x \leq 13$

☐ B. $x \geq 13$

☐ C. $x \leq 17$

☐ D. $x \geq 17$





8)

Which inequality is represented?

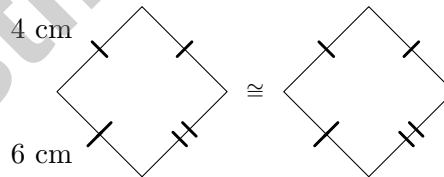
☐ A. $y \geq 3$

☐ C. $y > 3$

☐ B. $y \leq 3$

☐ D. $y < 3$

- 9) Two congruent kites are shown with matching tick marks. In Kite 1, two adjacent sides each measure 4 cm, and the other two adjacent sides each measure 6 cm. What are the side lengths of Kite 2?



☐ A. 2 cm, 2 cm, 3 cm, 3 cm

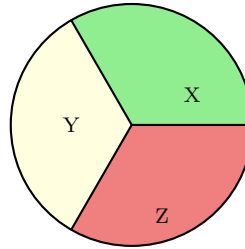
☐ C. 8 cm, 8 cm, 12 cm, 12 cm

☐ B. 4 cm, 4 cm, 6 cm, 6 cm

☐ D. 5 cm, 5 cm, 7 cm, 7 cm



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1)

The spinner has three sections: X covers 120° , Y covers 120° , Z covers 120° . What is the probability of NOT landing on Y?

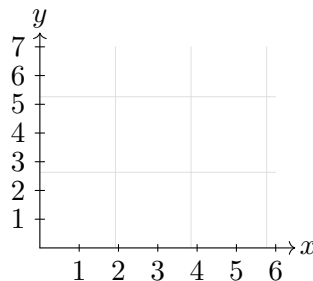
- ☐ A. $\frac{1}{2}$
☐ B. $\frac{2}{3}$

- ☐ C. $\frac{1}{3}$
☐ D. $\frac{1}{6}$

2) A student multiplies $(3.5 \times 10^4) \times (2 \times 10^3)$ and gets 7×10^7 . Which is true?

- ☐ A. The exponents should be multiplied to get 10^{12} .
☐ B. The coefficient is wrong; should multiply as $3.5 \times 2 = 7$, not separate.
☐ C. The student is correct.
☐ D. The coefficient should be changed to 0.7.

3) Graph the proportional relationship $y = \frac{3}{2}x$ by finding three points and identifying the slope. What is the slope?



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4) The line $x + 2y = 8$ has slope:

☐ A. 1

☐ B. -1

☐ C. $-\frac{1}{2}$

☐ D. 2

5) Look at the table of values for the equation $y = 2x + 1$:

x	y
1	3
2	5
?	9

What value of x produces $y = 9$?

☐ A. $x = 3$

☐ B. $x = 5$

☐ C. $x = 8$

☐ D. $x = 4$

6) Which table represents a function?

Table A:	x	1	2	2	3
	y	4	5	6	7

Table B:	x	1	2	3	4
	y	2	4	6	8

☐ A. Table A, because it has more inputs.

☐ B. Table B, because each input has exactly one output.

☐ C. Both tables are functions.

☐ D. Neither table is a function.

7) Which table does NOT represent a linear function?

☐ A.

x	y
0	5
1	7
2	9

☐ B.

x	y
1	2
2	5
3	10

☐ C.

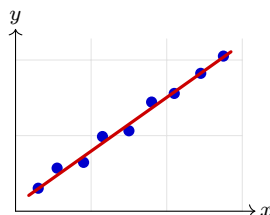
x	y
0	0
2	6
4	12

☐ D.

x	y
1	3
3	7
5	11



1) Function from $(0, 12)$ to $(3, 0)$. Slope is?

☐ A. -4
☐ C. 3
☐ B. -3
☐ D. 4


2)

Which is the BEST description of a “line of best fit” on a scatter plot?

☐ A. A line that passes through every data point

☐ C. A line that generally shows the overall trend of the data

☐ B. A line that passes through no data points

☐ D. A line that only passes through the outliers

3) Which data set has a MAD of 2?

☐ A. $\{1, 2, 3, 4, 5\}$
☐ C. $\{5, 7, 9, 11\}$
☐ B. $\{2, 4, 6, 10\}$
☐ D. $\{1, 3, 5, 9\}$

4) How many ways can you arrange 3 different books chosen from a shelf of 7 books?

☐ A. $7^3 = 343$
☐ C. $7 \times 6 \times 5 = 210$
☐ B. $7 + 6 + 5 = 18$
☐ D. $\binom{7}{3} = 35$


5) Convert $0.\overline{7}$ to a fraction.

- ☐ A. $\frac{1}{9}$
☐ B. $\frac{7}{10}$

- ☐ C. $\frac{7}{99}$
☐ D. $\frac{7}{9}$

6) What is 9.0×10^{-5} in standard form?

- ☐ A. 90,000
☐ B. 0.9

- ☐ C. 0.00009
☐ D. 0.000009

7) Which product is rational?

- ☐ A. $\sqrt{6} \times \sqrt{10}$
☐ B. $\sqrt{3} \times \sqrt{5}$

- ☐ C. $\sqrt{7} \times \sqrt{11}$
☐ D. $\sqrt{2} \times \sqrt{2}$

8)



Which list orders the values from least to greatest?

- ☐ A. $\sqrt{15}, \sqrt{5}, \sqrt[3]{8}$
☐ B. $\sqrt{5}, \sqrt[3]{8}, \sqrt{15}$

- ☐ C. $\sqrt{5}, \sqrt{15}, \sqrt[3]{8}$
☐ D. $\sqrt[3]{8}, \sqrt{5}, \sqrt{15}$

9) Which is the best estimate of $\sqrt{48}$?

- ☐ A. 6.5
☐ B. 7.0

- ☐ C. 6.9
☐ D. 8.2

10) Which deposit would earn more interest after 2 years at 5% simple interest?

- ☐ A. \$1,000
☐ B. \$1,500

- ☐ C. \$2,000
☐ D. \$2,500



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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.4) Rectangle = $12 \times 8 = 96 \text{ m}^2$. Each triangle = $\frac{1}{2} \times 2 \times 2 = 2 \text{ m}^2$. Four triangles = 8 m^2 . Total = $96 + 8 = 104 \text{ m}^2$.
- 2) **Choice B is correct.** (8.F.1) The range is the set of all output (y) values: 4, -2, 4, 7, -2. Written as a set without repetition: $\{-2, 4, 7\}$.
- 3) **Choice A is correct.** (8.F.4) y -intercept is 4. Slope is $\frac{10-4}{3-0} = \frac{6}{3} = 2$. Equation: $y = 2x + 4$.
- 4) **Choice B is correct.** (8.G.7, 8.G.8) From $(\sqrt{24})^2 + 1^2 = c^2$, we get $24 + 1 = 25$, so $c = \sqrt{25} = 5$.
- 5) **Choice D is correct.** (8.G.3) The sum for a heptagon is $(7 - 2) \times 180 = 900^\circ$. Each angle is $\frac{900}{7} = 128.57\dots^\circ$, which rounds to $\approx 129^\circ$.
- 6) **Choice C is correct.** (8.G.1b) Verify ratios: $\frac{12}{8} = 1.5$, $\frac{22.5}{15} = 1.5$, $\frac{25.5}{17} = 1.5$. Since all ratios are constant, the triangles are similar by SSS Similarity.
- 7) **Choice C is correct.** (8.EE.7) Multiply by 5: $x - 2 \leq 15$. Add 2: $x \leq 17$.
- 8) **Choice A is correct.** (8.G.9) Solid horizontal line at $y = 3$ with shading ABOVE means $y \geq 3$.
- 9) **Choice B is correct.** (8.NS.2) Congruent figures have equal corresponding sides. Kite 2 has the same side lengths as Kite 1: 4 cm, 4 cm, 6 cm, 6 cm.
- 10) **Choice B is correct.** (8.G.4) When parallel lines are cut by a transversal, corresponding angles are congruent. So the other angle also measures 70° .
- 11) **Choice A is correct.** (8.SP.3) The y -intercept (68) is the predicted value when $m = 0$. Since month 0 is outside the observed summer data range, this is an extrapolation used to define the line mathematically.
- 12) **Choice A is correct.** (8.F.2) $A(20) = 2.99 + 0.50(20) = 12.99$. B slope: $(6 - 1)/10 = 0.5$, so $B(20) = 1 + 0.5(20) = 11$. Since $12.99 > 11$, Plan A costs more.
- 13) **Choice B is correct.** (8.F.5) From $x = -1$ to $x = 2$, the graph moves downward from 2 to -1. The other listed intervals are flat or increasing.
- 14) **Choice A is correct.** (8.G.11) The rule for 270° counterclockwise rotation is $(x, y) \rightarrow (y, -x)$. So $(4, -3) \rightarrow (-3, -4)$.
- 15) **Choice B is correct.** (8.G.5) Triangle angle sum: $180 - 35 - 62 = 83^\circ$.
- 16) **Choice A is correct.** (8.G.9) Distance = $\sqrt{(4 - 1)^2 + (6 - 2)^2} = \sqrt{9 + 16} = \sqrt{25} = 5$.
- 17) **Choice B is correct.** (8.G.11a) For a right triangle, base area is $\frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2$ (not 48 cm^2). Correct volume: $V = \frac{1}{3} \times 24 \times 10 = 80 \text{ cm}^3$.
- 18) **Choice A is correct.** (8.SP.1) Points scattered randomly with no visible trend or pattern indicate no correlation between the variables. There is no identifiable relationship.
- 19) **Choice A is correct.** (8.SP.3) Joint relative frequency: $\frac{32}{240} \approx 0.133 \approx 13\%$. Cell count divided by grand total.
- 20) **Choice C is correct.** (8.G.9) Option C describes the common error of confusing range with MAD. Option B correctly uses absolute value, and options A and D do not describe the range error.
- 21) **The correct answer is B,E.** (8.EE.3) The product is $(4 \times 5) \times 10^{3+4} = 20 \times 10^7 = 2 \times 10^8$, so choices B and E are equivalent to the original expression. Choice A uses an exponent that is too large, and choices C and D have the wrong value.
- 22) **Choice A is correct.** (8.G.8) $P(A \text{ then } B) = \frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$.
- 23) **Choice B is correct.** (8.G.4) From the table, count all cells: 3 colors times 2 coin outcomes = 6 total outcomes.
- 24) **Choice C is correct.** (8.SP.2) Reading from the trend line at $x = 7$, the corresponding y -value is just under 7, so the best estimate is approximately 7.
- 25) **Choice D is correct.** (8.G.11) Let $x = 0.7\overline{89}$. Then $10x = 7.8\overline{9}$ and $1000x = 789.8\overline{9}$. Subtracting gives $990x = 789 - 7 = 782$, so the numerator is 782.
- 26) **Choice B is correct.** (8.NS.1) Any integer n can be written as $\frac{n}{1}$, so every integer is rational. Choice A is false because square roots of perfect squares, such as $\sqrt{25}$, are rational. Choice C is false because repeating decimals are always rational. Choice D is false because numbers that can be written as a fraction are rational, not irrational.



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You Know More Than You Think

Hi, Skilled Learner!

◇ After working through Grade 8 practice, you now have more tools than you may realize: models, formulas, graphs, equations, and reasoning habits. ◇

★ **Remember this:** The next step is learning when to use each tool. That comes from practice, review, and the courage to try a method even when you are unsure. This version gave you 7 opportunities to rehearse test-day habits. ★

Tools You Can Use

- **Models:** Make relationships visible.
- **Equations:** Represent unknowns clearly.
- **Graphs:** Show change and location.
- **Formulas:** Organize measurement problems.

Grade 8 test-day tip: Before solving, name the tool you plan to use. That small choice makes your work more intentional.

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

Jay Daie

Your Skill-Building Coach

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GRADE 8

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Algebra

Geometry

Statistics

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.



Build Skills & Boost Confidence

Strengthen understanding and feel prepared for test day.

COVERS ALL ESSENTIAL TOPICS

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



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