

3

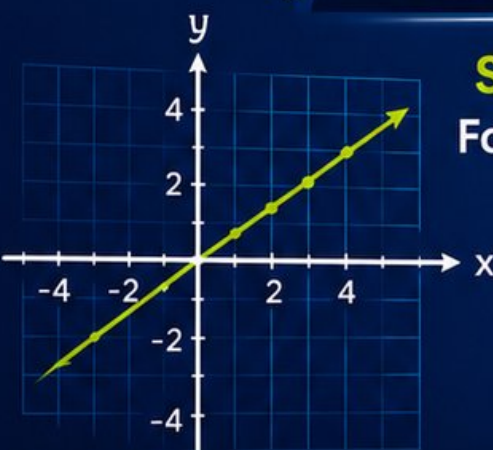
Kansas KAP

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$V = s^3$$



$$y = mx + b$$
$$2x + 5 = 13$$
$$x = 4$$



3

**PRINTED
TESTS**

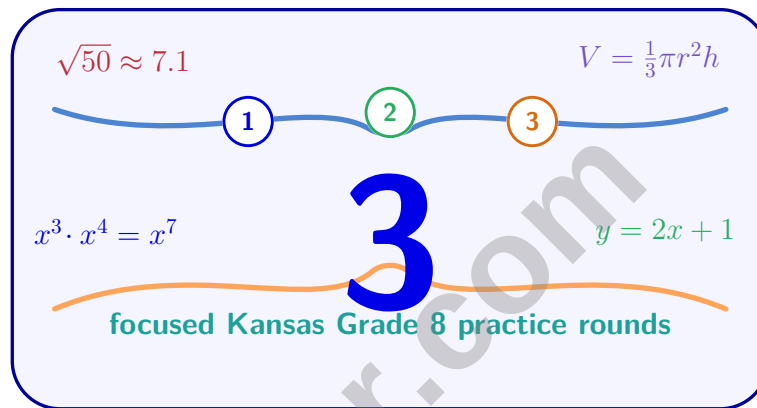
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**ONLINE
TESTS**

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

3 Kansas KAP Grade 8 Math Practice Tests

Focused Grade 8 KAP Practice with Clear Explanations



Three 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!

Three focused rounds for sharper KAP math thinking

This book gives you three 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 three-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?

Three KAP tests, 120 questions, and a focused review path

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

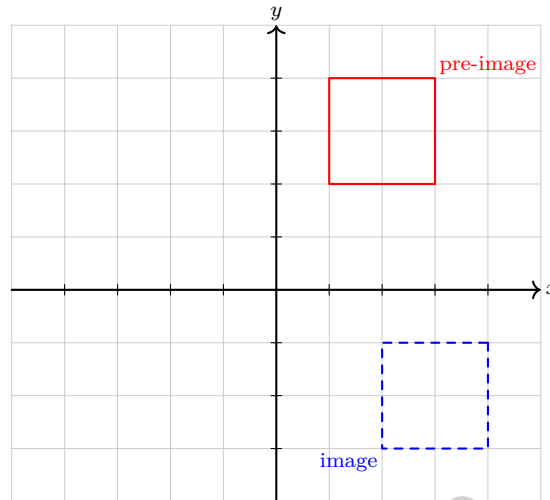


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1)

The red rectangle (pre-image) is transformed to the blue rectangle (image). Which sequence of transformations applies?

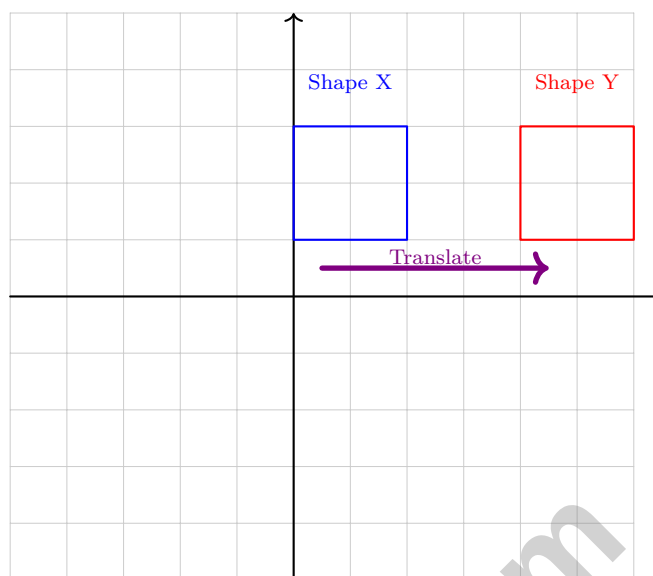
- ☐ A. Reflect across x -axis, then translate right 1 and up 1
 ☐ C. Reflect across the line $y = x$
☐ B. Translate right 1 and up 1, then reflect across x -axis
 ☐ D. Rotate 180° , translate right 3

2) A cubic metal box has an edge length of 6 cm. What is the surface area that needs to be painted?

- ☐ A. 36 cm^2 ☐ C. 144 cm^2
☐ B. 72 cm^2 ☐ D. 216 cm^2



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3)

Based on the arrow shown, what is the translation vector from Shape X to Shape Y?

☐ A. $(2, 0)$

☐ C. $(4, 2)$

☐ B. $(4, 0)$

☐ D. $(2, 2)$

4) Solve for x : $4x + 9 = 4x + 2$

☐ A. $x = 7$

☐ C. Infinitely many solutions

☐ B. $x = -7$

☐ D. No solution5) Solve: $6 - 2x \geq -2$

☐ A. $x \leq 4$

☐ C. $x \leq -4$

☐ B. $x \geq 4$

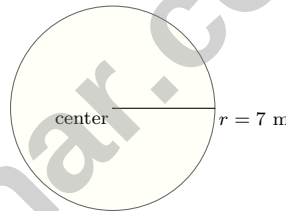
☐ D. $x \geq -4$



6) To determine the solution region of an inequality, you can use a test point. Which is the most efficient test point to select?

- ☐ A. A point on the boundary line ☐ C. Any point with negative coordinates
☐ B. The origin (0,0), provided it is not on the boundary ☐ D. A point in Quadrant III

7) A virus has diameter 1.2×10^{-7} m. Bacteria has diameter 8×10^{-6} m. How many times larger is the bacterium than the virus?



8)

A sphere with radius 7 m is shown. What is its approximate volume? (Use $\pi \approx 3.14$.)

- ☐ A. 615.44 m³ ☐ C. 1436.03 m³
☐ B. 1230.88 m³ ☐ D. 1916.8 m³

9) A bank offers two savings accounts: Account M at 4% simple interest, and Account N at 2% compound interest annually. After 3 years on an initial deposit of \$1,000, which is better?

- ☐ A. Cannot determine ☐ C. They are equal
☐ B. Account N (compound) ☐ D. Account M (simple)



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1) Which pair of numbers are both irrational?

- ☐ A. $\sqrt{121}$ and π
☐ C. $-\frac{3}{7}$ and $\sqrt{15}$
☐ B. $0.505005\dots$ (non-repeating) and $\sqrt{16}$
☐ D. $\sqrt{15}$ and $\sqrt{24}$

Algorithm for $0.2\bar{5}$

Step 1: $x = 0.2\bar{5}$

Step 2: $10x = 2.\bar{5}$, $100x = 25.\bar{5}$

Step 3: subtract the aligned equations

Step 4: solve for x

2)

What is $0.2\bar{5}$ as a fraction?

- ☐ A. $\frac{25}{100}$
☐ C. $\frac{2}{10}$
☐ B. $\frac{25}{90}$
☐ D. $\frac{23}{90}$

3) Which set contains only irrational numbers?

- ☐ A. $\{1, 2, 3\}$
☐ C. $\{\sqrt{2}, 3, \sqrt{5}\}$
☐ B. $\{\sqrt{4}, \sqrt{9}, \sqrt{16}\}$
☐ D. $\{\sqrt{2}, \sqrt{3}, \sqrt{5}\}$

4) Which is the best estimate of $\pi + \sqrt{5}$?

- ☐ A. 4.6
 ☐ C. 6.0
☐ B. 7.8
 ☐ D. 5.4

5) Which is arranged from smallest to largest?

- ☐ A. $2 \times 10^1, 2 \times 10^{-3}, 2 \times 10^{-1}$
☐ C. $2 \times 10^{-1}, 2 \times 10^{-3}, 2 \times 10^1$
☐ B. $2 \times 10^1, 2 \times 10^{-1}, 2 \times 10^{-3}$
☐ D. $2 \times 10^{-3}, 2 \times 10^{-1}, 2 \times 10^1$



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- 6) The height of a ball (in meters) t seconds after being thrown is $h(t) = 20t - 5t^2$. Find $h(2)$.

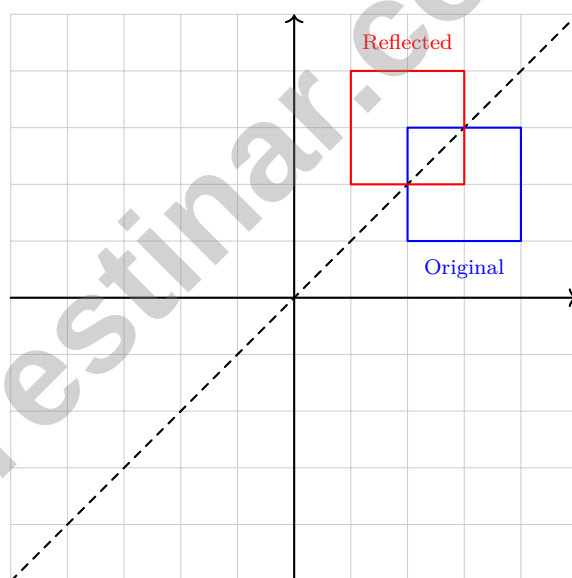
- 7) A cylindrical container open at the top has radius 3 cm and height 10 cm. If we need to cover only the curved surface and the bottom (not the top), how much area needs to be covered?

☐ A. $60\pi \text{ cm}^2$

☐ B. $69\pi \text{ cm}^2$

☐ C. $78\pi \text{ cm}^2$

☐ D. $88\pi \text{ cm}^2$



8)

The blue rectangle is reflected across the dashed line. Which line of reflection is shown?

☐ A. $y = x$

☐ B. $y = -x$

☐ C. $y = x - 3$

☐ D. $y = 2x$



- 1) Among high-quality products in the table below, what relative frequency are premium-priced?

	Premium	Standard	Total
High Quality	240	80	320
Low Quality	48	112	160
Total	288	192	480

- ☐ A. $\frac{240}{480} = 0.50$
☐ C. $\frac{240}{320} = 0.75$
- ☐ B. $\frac{240}{288} \approx 0.83$
☐ D. $\frac{240}{480} = 0.60$
- 2) When the correlation between two variables is weak, the trend line:
- ☐ A. Has a slope of zero
 ☐ D. Will be very accurate for predictions
- ☐ B. Should not be used at all
- ☐ C. Will have large residuals and less reliable predictions
- 3) Two similar polygons have areas in the ratio $\frac{9}{16}$. What is the scale factor from the smaller to the larger polygon?
- ☐ A. $\frac{9}{16}$
☐ C. $\frac{4}{3}$
- ☐ B. $\frac{3}{4}$
☐ D. 2.25
- 4) If $f(x) = |x - 2|$, what is $f(5)$?
- ☐ A. 3
 ☐ C. 7
- ☐ B. -3
 ☐ D. -7



5) What is $0.3\overline{2}$ as a fraction?

- ☐ A. $\frac{3}{20}$
☐ B. $\frac{32}{100}$

- ☐ C. $\frac{32}{99}$
☐ D. $\frac{29}{90}$

6) Which radicand gives a square root closest to 5.5?

- ☐ A. 25
☐ B. 28

- ☐ C. 33
☐ D. 30

7) Which is the best estimate of π ?

- ☐ A. 2.14
☐ B. 3.0

- ☐ C. 3.14
☐ D. 3.5

8) A person compares two loans for \$2,000:

Loan	APR	Term
X	5%	2 years
Y	4%	3 years

If the person wants to minimize total borrowing cost, which loan is better?

- ☐ A. Need more information
☐ B. Loan Y

- ☐ C. They cost the same
☐ D. Loan X

9) Which is equivalent to 8.2×10^{-2} ?

- ☐ A. 820
☐ B. 82

- ☐ C. 0.82
☐ D. 0.082



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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 A is correct.** (8.G.11) Reflecting across the x -axis maps $(1, 2) \rightarrow (1, -2)$. Translating right 1 and up 1 gives $(2, -1)$, which is a vertex of the image. Checking the other vertices shows the same rule maps the whole rectangle correctly.
- 2) **Choice D is correct.** (8.G.10) $SA = 6(6)^2 = 6(36) = 216 \text{ cm}^2$.
- 3) **Choice B is correct.** (8.EE.6) The shape moves 4 units to the right and 0 units vertically. Shape X spans $x = 0$ -2; Shape Y spans $x = 4$ -6, confirming a 4-unit horizontal shift.
- 4) **Choice D is correct.** (8.EE.7) Subtract $4x$ from both sides: $9 = 2$, which is false. This equation has no solution.
- 5) **Choice A is correct.** (8.EE.7) Subtract 6: $-2x \geq -8$. Divide by -2 (FLIP): $x \leq 4$.
- 6) **Choice B is correct.** (8.G.9) The origin is easy to test computationally and gives quick results. If the boundary line passes through $(0, 0)$, choose another convenient point like $(1, 0)$ or $(0, 1)$.
- 7) **The correct answer is 66.67.** (8.EE.2) Divide: $\frac{8 \times 10^{-6}}{1.2 \times 10^{-7}} = \frac{8}{1.2} \times 10^1 = 6.67 \times 10^1 \approx 66.67$.
- 8) **Choice C is correct.** (8.G.8) $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 343 \approx 1436.03 \text{ m}^3$.
- 9) **Choice D is correct.** (8.G.8) M: $I = 1000 \times 0.04 \times 3 = \120 . N: $1000(1.02)^3 \approx 1061.21$, so interest $\approx \$61.21$. Account M is better.
- 10) **Choice D is correct.** (8.EE.2) First apply quotient rule: $\frac{m^8}{m^5} = m^3$. Then multiply: $m^3 \cdot m^2 = m^{3+2} = m^5$.
- 11) **Choice C is correct.** (8.EE.1) Area of a square $= s^2 = 9^2 = 81 \text{ cm}^2$.
- 12) **Choice C is correct.** (8.EE.3) Multiply coefficients: $2 \times 3 \times 5 = 30 = 3 \times 10^1$. Add exponents: $10^{2+3+1} = 10^6$. Combine: $3 \times 10^1 \times 10^6 = 3 \times 10^7$.
- 13) **Choice A is correct.** (8.G.9) In slope-intercept form $y = mx + b$, the y -intercept is b . Here $b = -7$.
- 14) **Choice A is correct.** (8.F.2) Check $(3, 1)$: $2(3) - 1 = 5$ ✓ and $3 + 2(1) = 5$ ✓. Both equations are satisfied.
- 15) **Choice A is correct.** (8.F.1) Option A has each input mapping to exactly one output. Option B has input 1 mapping to two outputs. Option C has input 5 mapping to two outputs. Option D has input 2 mapping to two outputs.
- 16) **Choice C is correct.** (8.F.2) Slope of p : $\frac{3}{2} = 1.5$. From table q : $(5 - 2)/(2 - 0) = 3/2 = 1.5$. Both have slope 1.5.
- 17) **Choice A is correct.** (8.F.4) Slope is $m = \frac{11-5}{4-1} = \frac{6}{3} = 2$.
- 18) **The correct answer is $\frac{1}{3}$.** (8.G.11) Let $x = 0.\bar{3}$. Then $10x = 3.\bar{3}$, so $9x = 3$ and $x = \frac{1}{3}$.
- 19) **Choice B is correct.** (8.F.5) The graph reaches approximately 3m at hour 5 (the endpoint of the descending segment). This is where the plateau begins.
- 20) **Choice C is correct.** (8.NS.2) Reflection is a rigid motion that preserves all distances and angles. So the reflected pentagon is congruent to the original.
- 21) **Choice A is correct.** (8.G.5) Using parallel line properties (alternate interior angles) and triangle angle sum: $35 + 55 + \angle PTS = 180$, so $\angle PTS = 90^\circ$.
- 22) **The correct answer is A,C.** (8.NS.1) Statement A is true because rational numbers are closed under addition. Statement C is true because any terminating decimal, such as $0.75 = \frac{3}{4}$, is rational. Statement B is false because two irrational numbers can multiply to a rational number, for example $\sqrt{2} \times \sqrt{8} = 4$. Statement D is false because integers are rational. Statement E is false because perfect squares have rational square roots, not irrational ones.
- 23) **Choice A is correct.** (8.G.7, 8.G.8) From $(\sqrt{2})^2 + (\sqrt{2})^2 = c^2$, we get $2 + 2 = 4$, so $c = 2$.
- 24) **Choice C is correct.** (8.G.4) The supplement of an angle is found by subtracting from 180° : $180 - 29 = 151^\circ$.
- 25) **Choice B is correct.** (8.G.11a) $V = \frac{1}{3} \times 16 \times 3\sqrt{2} = 16\sqrt{2} \text{ cm}^3$.
- 26) **Choice B is correct.** (8.G.4) The square area is $20 \times 20 = 400 \text{ m}^2$. Four corner triangles are removed, and each has area $\frac{1}{2} \times 3 \times 3 = 4.5 \text{ m}^2$. The octagon area is $400 - 4(4.5) = 382 \text{ m}^2$.
- 27) **Choice C is correct.** (8.G.3) Each interior angle of a regular hexagon is $\frac{(6-2) \times 180}{6} = \frac{720}{6} = 120^\circ$.
- 28) **Choice D is correct.** (8.SP.1) Taller people generally wear larger shoe sizes, forming a clear upward trend. The relationship is positive (both increase together) and reasonably strong.



Hi, Grade 8 Math Star!

◇ You finished this practice set with real effort. Grade 8 math asks you to connect ideas, explain your thinking, and stay steady through multi-step problems. ◇

★ **Remember this:** Every page you completed helped build stronger habits: reading carefully, choosing a method, showing work, and checking whether the answer makes sense. You practiced across 3 full Grade 8 practice tests, and that repeated effort matters. ★

What You Built

- **Focus:** You stayed with challenging questions.
- **Accuracy:** You learned to slow down when details matter.
- **Reasoning:** You practiced explaining why a method works.
- **Readiness:** You are more prepared than when you started.

Grade 8 test-day tip: Before test day, review the questions that made you pause. Those are the best teachers.

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

Jay Daie

Your Grade 8 Math Friend

PRACTICE TODAY, ACHIEVE TOMORROW!

GRADE
8

Give your child the edge they need with **3 full-length** Grade 8 Math practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, boosting confidence, and preparing for 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.



Build Skills & Boost Confidence

Strengthen understanding and feel prepared for test day.

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!



2 Extra Online Practice Tests Included!

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

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PRACTICE. PREPARE. SUCCEED.



Testinar

More Practice. More Confidence.
Better **Results**.