

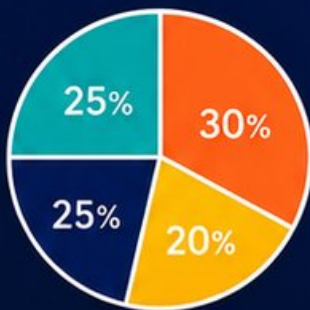
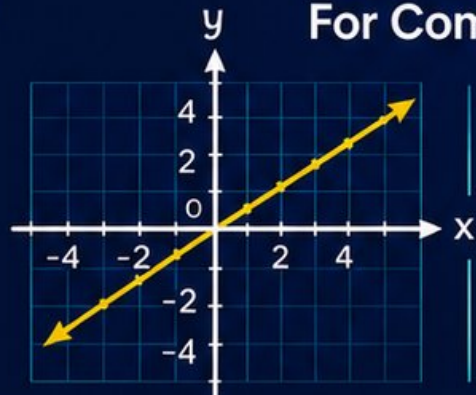
Kentucky KSA

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

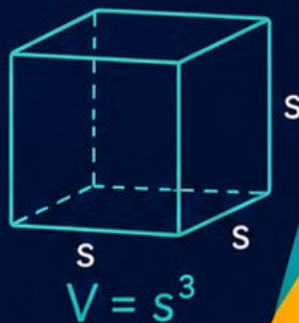


$$y = mx + b$$

$$2x - 3y = 6$$

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

$$A = bh$$



4 PRINTED TESTS



2 ONLINE TESTS

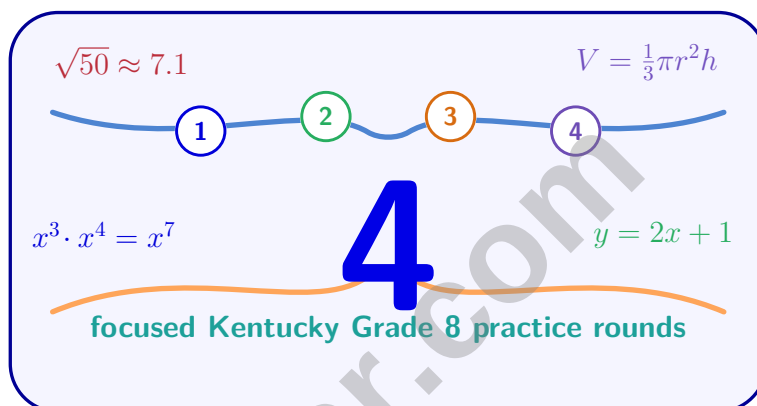


Use these **two additional online practice tests** for extra review after the printed tests in this book.



4 Kentucky KSA Grade 8 Math Practice Tests

Focused KSA Practice for Grade 8 Skills and Test Readiness



Four complete 40-question Grade 8 KSA 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, Kentucky Grade 8 Problem Solver!

Four focused rounds for sharper KSA math thinking

This book gives you four full Grade 8 KSA 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 Kentucky 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.

Kentucky 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 KSA 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.

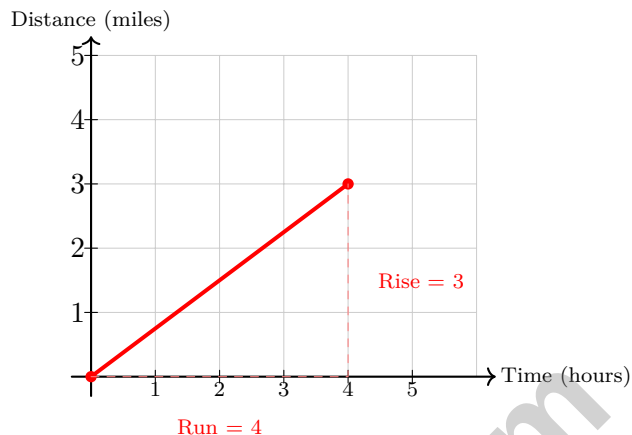


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- 1) A car travels at a constant speed. The graph shows its distance from the start over time.



What is the slope (rate of change) of the car's distance?

- ☐ A. 1 mile per hour ☐ C. $\frac{3}{4}$ miles per hour
- ☐ B. $\frac{4}{3}$ miles per hour ☐ D. 4 miles per hour
- 2) A triangle with vertices at $(1,0)$, $(3,0)$, and $(2,2)$ is reflected across the x -axis. What is the y -coordinate of the image of the vertex originally at $(2,2)$?
- ☐ A. 2 ☐ C. 0
- ☐ B. -2 ☐ D. 4
- 3) Two fair coins are tossed. How many total outcomes are in the sample space?
- ☐ A. 2 ☐ C. 8
- ☐ B. 4 ☐ D. 3



- 4) Two students sketch different trend lines through the same scatter plot. Student A's line has a gentler slope, while Student B's line has a steeper slope. What could explain this difference?
- ☐ A. One student made a calculation error ☐ C. Only one line can ever be correct
- ☐ B. The students used different data sets ☐ D. Sketching a trend line by eye allows for reasonable variation
- 5) A concert sells premium tickets at \$60 and economy tickets at \$20. A total of 300 tickets sold for \$12,000. How many premium tickets were sold?
- ☐ A. 75 ☐ C. 125
- ☐ B. 100 ☐ D. 150
- 6) Pentagons $ABCDE$ and $FGHIJ$ are similar. Side $AB = 7$ cm and the corresponding side $FG = 14$ cm. If $BC = 9$ cm, what is the length of GH ?
- ☐ A. 4.5 cm ☐ C. 9 cm
- ☐ B. 18 cm ☐ D. 11.5 cm
- 7) If $f(x) = x - 3$ and $f(x) = 5$, what is x ?
- ☐ A. 2 ☐ C. 5
- ☐ B. 8 ☐ D. 15
- 8) The decimal expansion of a rational number is:
- ☐ A. Always irrational ☐ C. Always non-terminating
- ☐ B. Cannot be written as a fraction ☐ D. Either terminating or repeating



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9) What is $0.\overline{3}$ as a fraction?

- ☐ A. $\frac{1}{10}$
☐ B. $\frac{3}{10}$

- ☐ C. $\frac{3}{99}$
☐ D. $\frac{3}{9} = \frac{1}{3}$

10) Between which two consecutive integers does $\sqrt{53}$ lie?

- ☐ A. 6 and 7
☐ B. 5 and 6

- ☐ C. 8 and 9
☐ D. 7 and 8

11) Which statement is true?

- ☐ A. $\sqrt{36}$ is irrational
☐ B. π is rational

- ☐ C. $\sqrt{11}$ is irrational
☐ D. $0.333\dots$ is irrational

12) The speed of light is about 3×10^8 m/s. How many times faster is this than the speed of sound, which is 3.4×10^2 m/s?

- ☐ A. Approximately 880 times
☐ B. Approximately 8,800 times

- ☐ C. Approximately 88,000 times
☐ D. Approximately 880,000 times

13) A cylindrical grain silo has a diameter of 10 feet and a height of 20 feet. The curved exterior wall must be painted. If paint costs \$2 per square foot, what is the total cost of paint needed? (Use $\pi \approx 3.14$.)

- ☐ A. \$314
☐ B. \$628

- ☐ C. \$1,256
☐ D. \$1,570

14) A student claims that reflecting a point across the x -axis and then across the y -axis gives the same result as rotating 180° about the origin. Is this claim correct?

- ☐ A. No, reflections never equal rotations
☐ B. Yes, both transformations map $(x, y) \rightarrow (-x, -y)$
☐ C. Only if the point is on an axis
☐ D. Only for points in Quadrant I



1) What is $\sqrt[3]{1728}$?

☐ A. 10

☐ C. 12

☐ B. 11

☐ D. 13

2) Solve:
$$\begin{cases} 5x - 2y = 4 \\ 2x + y = 7 \end{cases}$$

☐ A. (1, 2)

☐ C. (1.2, 1)

☐ B. (2, 1)

☐ D. (2, 3)

3) A table shows values for x and y . What is the rate of change?

x	0	2	4	6
y	-2	2	6	10

☐ A. 2

☐ C. 4

☐ B. $\frac{1}{2}$

☐ D. -2

4) Among 180 volunteers at an event, 108 are adults and 72 are youth. Of the adults, 81 worked the morning shift. What is the relative frequency of morning-shift workers among adults?

☐ A. 0.45

☐ C. 0.75

☐ B. 0.60

☐ D. 0.85

5) A rectangular garden is 20 m long and 12 m wide. A triangular flower bed (base 8 m, height 5 m) is added. What is the total area?



6) A student calculates the MAD and gets a negative value. What error did the student make?

- ☐ A. Divided by the wrong number ☐ C. Used the median instead of the mean
☐ B. Forgot to use absolute values in deviations ☐ D. Calculated range instead of MAD

Explain: Why is a negative MAD impossible?

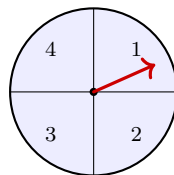
7) A teacher selects 4 students from 10 to form a committee (all members have equal roles, no hierarchy). A student claims there are $\binom{10}{4} = 210$ ways. Is this correct?

- ☐ A. Yes, 210 is correct (order doesn't matter, so selection is what counts). ☐ C. No, the answer is $10! = 3,628,800$.
☐ B. No, the answer is $10 \times 9 \times 8 \times 7 = 5,040$ (because we're counting arrangements). ☐ D. No, order matters because students are different people.

8) Triangle PQR has vertices $P(1, 2)$, $Q(4, 2)$, and $R(2, 5)$. A translation moves P to $P'(4, 5)$. What is the image of Q after this translation?

- ☐ A. (7, 3) ☐ C. (5, 7)
☐ B. (7, 5) ☐ D. (6, 4)

9) A spinner has 4 equal sections. If it is spun three times, what is the probability of landing on section 1 all three times?



- ☐ A. $\frac{1}{16}$ ☐ C. $\frac{1}{64}$
☐ B. $\frac{1}{12}$ ☐ D. $\frac{3}{4}$



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1) Which transformation rule represents a reflection across the y -axis?

☐ A. $(x, y) \rightarrow (x, -y)$

☐ C. $(x, y) \rightarrow (y, x)$

☐ B. $(x, y) \rightarrow (-x, y)$

☐ D. $(x, y) \rightarrow (-x, -y)$

2) If $x^2 = 81$, what are the possible values of x ?

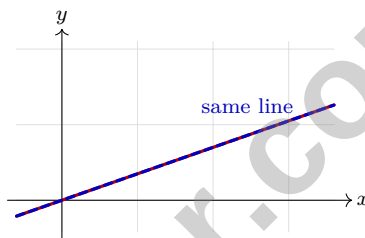
☐ A. 9 only

☐ C. 9 or -9

☐ B. -9 only

☐ D. 3 or -3

3) Two lines on a coordinate plane are identical (the same line). How many solutions does the system have?



☐ A. No solution

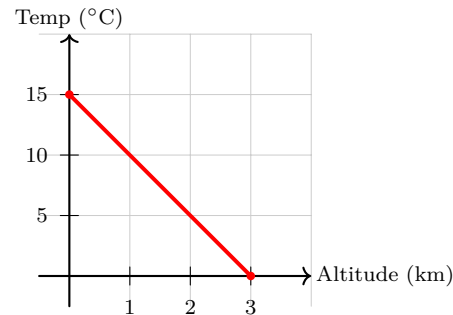
☐ C. Exactly two solutions

☐ B. Exactly one solution

☐ D. Infinitely many solutions



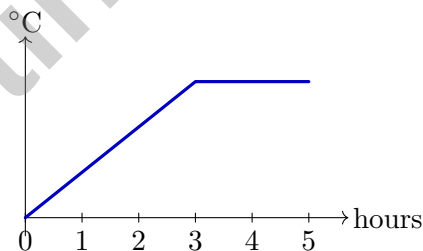
- 4) A graph shows temperature (in $^{\circ}\text{C}$) versus altitude (in km). The line passes through $(0, 15)$ and $(3, 0)$.



What is the slope?

- ☐ A. -5°C per km
- ☐ B. 5°C per km
- ☐ C. $-\frac{1}{5}^{\circ}\text{C}$ per km
- ☐ D. 3°C per km

- 5) A graph shows temperature rising for 3 hours at 5 degrees per hour, then stays constant for 2 hours. If the starting temperature is 10 degrees C, what is the temperature after 5 hours?



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Kentucky KSA 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 Kentucky KSA practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (KY.8.EE.8) The rise is 3 miles and the run is 4 hours. Slope = $\frac{3}{4}$ miles per hour. This is the constant speed.
- 2) **Choice B is correct.** (KY.8.G.3) Reflection across the x -axis maps $(x, y) \rightarrow (x, -y)$. So $(2, 2) \rightarrow (2, -2)$, giving y -coordinate -2 .
- 3) **Choice B is correct.** (KY.8.G.9) Sample space: HH, HT, TH, TT. There are 4 total outcomes.
- 4) **Choice D is correct.** (KY.8.SP.2) When sketching trend lines by hand, slight differences in slope are natural and acceptable, as long as both lines reasonably balance data on both sides and follow the overall trend.
- 5) **Choice D is correct.** (KY.8.EE.7) Let p = premium tickets and e = economy tickets. Then $p + e = 300$ and $60p + 20e = 12000$. From the first: $e = 300 - p$. Substituting: $60p + 20(300 - p) = 12000$, so $60p + 6000 - 20p = 12000$, giving $40p = 6000$ and $p = 150$.
- 6) **Choice B is correct.** (KY.8.G.4) Scale factor is $\frac{14}{7} = 2$. So $GH = BC \times 2 = 9 \times 2 = 18$ cm.
- 7) **Choice B is correct.** (KY.8.F.3) Solve $x - 3 = 5$ for x : $x = 5 + 3 = 8$.
- 8) **Choice D is correct.** (KY.8.NS.1) By definition, a rational number can be written as $\frac{a}{b}$ where a and b are integers with $b \neq 0$. Its decimal form must terminate or have a repeating pattern.
- 9) **Choice D is correct.** (KY.8.NS.1) Let $x = 0.\overline{3}$. Then $10x = 3.\overline{3}$. Subtracting: $9x = 3$, so $x = \frac{3}{9} = \frac{1}{3}$.
- 10) **Choice D is correct.** (KY.8.NS.2) $7^2 = 49$ and $8^2 = 64$. Since $49 < 53 < 64$, we have $7 < \sqrt{53} < 8$.
- 11) **Choice C is correct.** (KY.8.G.3) $\sqrt{36} = 6$ (rational), π is irrational, and $0.333\ldots = \frac{1}{3}$ (rational). $\sqrt{11}$ cannot be expressed as a ratio of integers.
- 12) **Choice D is correct.** (KY.8.EE.3) Divide: $\frac{3 \times 10^8}{3.4 \times 10^2} = \frac{3}{3.4} \times 10^6 \approx 0.88 \times 10^6 = 8.8 \times 10^5 \approx 880,000$.
- 13) **Choice C is correct.** (KY.8.G.9) Radius $r = 5$ feet. Lateral (curved) surface area = $2\pi rh = 2(3.14)(5)(20) = 628$ sq. ft. Cost = $628 \times \$2 = \$1,256$.
- 14) **Choice B is correct.** (KY.8.G.1) Reflect (x, y) across x -axis: $(x, -y)$. Then across y -axis: $(-x, -y)$. A 180° rotation also gives $(-x, -y)$.
- 15) **The correct answer is $(3, -1)$.** (KY.8.EE.8) Add the equations: $(2x + y) + (x - y) = 5 + 4$, so $3x = 9$, giving $x = 3$. Substitute: $3 - y = 4$, so $y = -1$.
- 16) **Choice D is correct.** (KY.8.EE.6) The given line has slope 4, so the perpendicular slope is $-\frac{1}{4}$. With $b = -2$, the equation is $y = -\frac{1}{4}x - 2$.
- 17) **Choice A is correct.** (KY.8.EE.7) Subtract 5: $\frac{x}{3} = 4$. Multiply by 3: $x = 12$.
- 18) **The correct answer is 0.75.** (KY.8.SP.3) Among dog owners: $\frac{108}{144} = 0.75$. This is a row-conditional frequency.
- 19) **The correct answer is A,B.** (KY.8.EE.2) When $x = 6$: $6^2 = 36$ (choice A is correct) and $6^3 = 216$ (choice B is correct). For choice C: $6^2 = 36 \neq 64$. For choice D: $6^3 = 216 \neq 144$. For choice E: $6^2 = 36 \neq 25$.
- 20) **Choice A is correct.** (KY.8.EE.7) Subtract 6: $-2x \geq -8$. Divide by -2 (FLIP): $x \leq 4$.
- 21) **Choice D is correct.** (KY.8.G.8) Test $(3, 2)$: $3 + 2 = 5 \not\leq 4$ FALSE. The other points all satisfy $x + y \leq 4$.
- 22) **Choice C is correct.** (KY.8.G.9) Radius $r = 10$ cm. From $V = \pi r^2 h$: $1570 = 3.14 \times 100 \times h \Rightarrow h = \frac{1570}{314} = 5$ cm.
- 23) **Choice D is correct.** (KY.8.G.9) Interest needed: \$80. Solve: $80 = 800 \times 0.05 \times t \Rightarrow t = 2$ years.
- 24) **Choice D is correct.** (KY.8.EE.1) Negative exponent flips the fraction: $\left(\frac{1}{3}\right)^{-2} = \left(\frac{3}{1}\right)^2 = 3^2 = 9$.
- 25) **Choice C is correct.** (KY.8.EE.4) Multiply coefficients: $2 \times 3 \times 5 = 30 = 3 \times 10^1$. Add exponents: $10^{2+3+1} = 10^6$. Combine: $3 \times 10^1 \times 10^6 = 3 \times 10^7$.
- 26) **Choice A is correct.** (KY.8.EE.5) For $y = 2x$: at $x = 1$, $y = 2(1) = 2$. Only choice A gives the correct point.
- 27) **Choice C is correct.** (KY.8.EE.7) $(2x + 3)^2 = (2x)^2 + 2(2x)(3) + 3^2 = 4x^2 + 12x + 9$.
- 28) **The correct answer is 0.4.** (KY.8.G.8) Compute $1.6 - 1.2 = 0.4$.



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Hi, Smart Reviewer!

◇ The best learning often happens after the test, when you look back and notice what worked and what needs attention. This carefully paced book gave you four steady Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** You can use these practice tests as a map. The questions you solved quickly show strengths; the questions you missed show where to train next. ★

Review Routine

- **Sort:** Group mistakes by skill.
- **Reread:** Check whether the question was misunderstood.
- **Resolve:** Do the problem again without looking.
- **Record:** Write the lesson in one sentence.

Grade 8 test-day tip: Review in short focused sessions. Ten careful minutes can be more useful than an hour of rushing.

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

Jay Daie

Your Review 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



2 ONLINE TESTS



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