

8

Kentucky

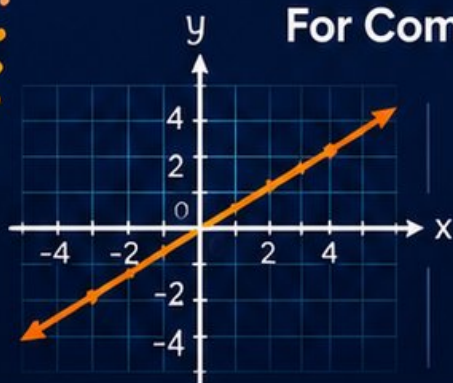
KSA

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$
$$C = 2\pi r$$
$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}b^2 h$$



8

 PRINTED TESTS

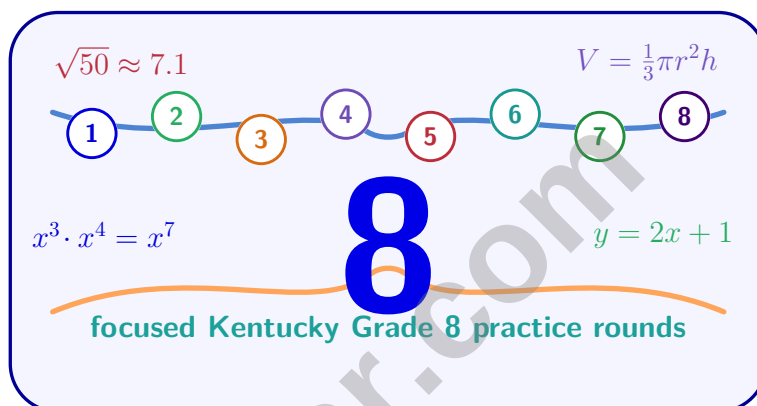
2

 ONLINE TESTS

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

8 Kentucky KSA Grade 8 Math Practice Tests

Kentucky Review for Grade 8 Equations, Functions, and Geometry



Eight 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!

Eight focused rounds for sharper KSA math thinking

This book gives you eight 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

An eight-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?

Eight KSA tests, 320 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.
Tests 7–8	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
Answer Pages	Compact keys and explanations that show why each answer works.

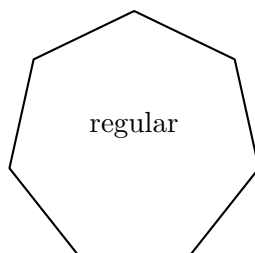
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	29
★ Practice Test 3	_____	45
★ Practice Test 4	_____	61
★ Practice Test 5	_____	78
★ Practice Test 6	_____	93
★ Practice Test 7	_____	109
★ Practice Test 8	_____	125
Practice Test Answer Keys	_____	142
Practice Test Answers and Explanations	_____	147



1)

A regular heptagon is shown. What is the measure of each interior angle (to nearest whole degree)?

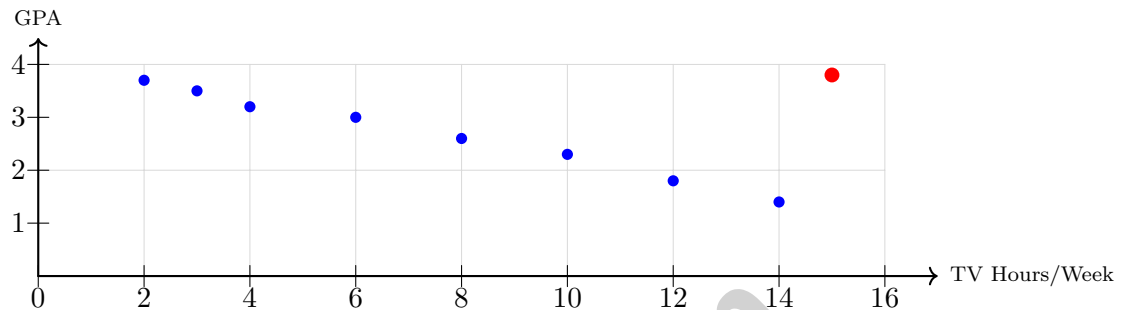
☐ A. $\approx 129^\circ$ ☐ C. $\approx 148^\circ$ ☐ B. $\approx 138^\circ$ ☐ D. $\approx 158^\circ$

2) A point $P(3, 7)$ moves to $P'(-2, 4)$. What is the translation vector?

3) In a triangle, the three angles are in the ratio 1 : 2 : 3. Find the measure of the largest angle.



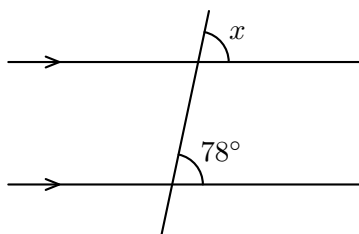
- 4) A scatter plot displays student GPA versus hours watched TV per week. Most students show a pattern: those who watch more TV have lower GPAs. A student with a GPA of 3.8 watches 15 hours of TV per week, while similar high watchers have GPAs around 1.4–2.0. Is this student an outlier?



- ☐ A. No, the GPA is typical for high TV watchers
☐ B. No, GPA is unrelated to TV time
☐ C. Yes, it deviates from the expected negative pattern
☐ D. No, all points above GPA 3.0 are outliers
- 5) Two different lines are fit to the same scatter plot. Line 1 has residuals of $\pm 2, \pm 1.5, \pm 2$, while Line 2 has residuals of $\pm 5, \pm 4, \pm 6$. Which line is the better fit?
- ☐ A. Line 1, because it has smaller residuals overall
☐ B. Line 2, because it has larger residuals
☐ C. Both are equally good fits
☐ D. Neither is a good fit



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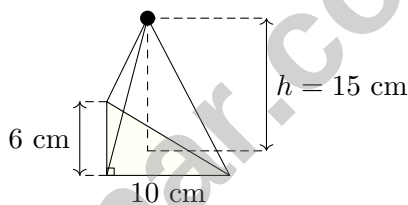


6)

Two parallel lines are cut by a transversal. One angle measures 78° . What is x , the measure of the corresponding angle on the upper parallel line?

☐ A. 51° ☐ C. 102° ☐ B. 78° ☐ D. 128°

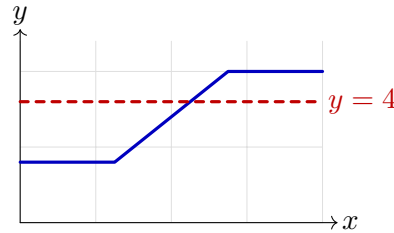
7) A pyramid has a right-triangular base with legs 10 cm and 6 cm. The pyramid height is 15 cm. What is its volume?

☐ A. 150 cm^3 ☐ C. 450 cm^3 ☐ B. 300 cm^3 ☐ D. 900 cm^3

8) Two points are at $(-3, 4)$ and $(5, -2)$. Calculate the distance between them. Round to the nearest tenth if necessary.



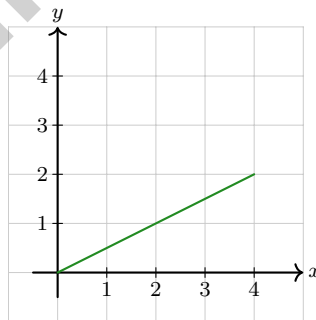
- 1) A piecewise function has: constant segment at $y = 2$, then increasing segment, then constant segment at $y = 5$. How many times does it cross a horizontal line $y = 4$?



- ☐ A. Zero times (never)
 ☐ C. Exactly twice (at two different points)
- ☐ B. Exactly once (during the increasing segment)
 ☐ D. Cannot determine without seeing the graph
- 2) Which set of ordered pairs does NOT represent a function?

- ☐ A. $\{(0, 5), (1, 6), (2, 7), (3, 8)\}$
☐ C. $\{(1, 3), (2, 3), (3, 3), (4, 3)\}$
- ☐ B. $\{(1, 1), (2, 4), (3, 9), (4, 16)\}$
☐ D. $\{(2, 4), (2, 5), (3, 6), (4, 7)\}$

- 3) Which of the following graphs shows a LINEAR function?

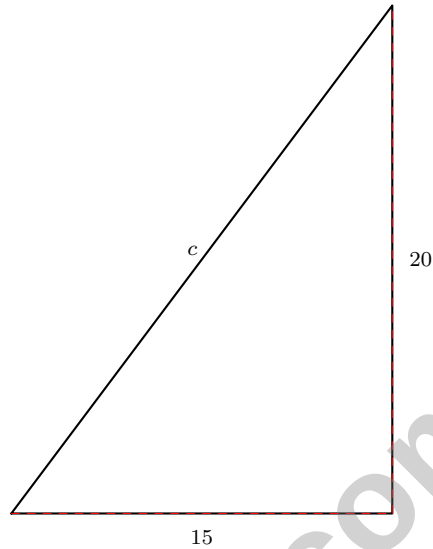


- ☐ A. No, the slope is less than 1
 ☐ C. No, only if it passes through the origin
- ☐ B. No, because the rate of change varies
 ☐ D. Yes, the line is straight



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- 4) Does the set of numbers 15, 20, 25 form a Pythagorean triple? If yes, which is the hypotenuse?



- ☐ A. Yes; the hypotenuse is 25 ☐ C. No; it does not work
☐ B. Yes; the hypotenuse is 20 ☐ D. Yes; the hypotenuse is 15



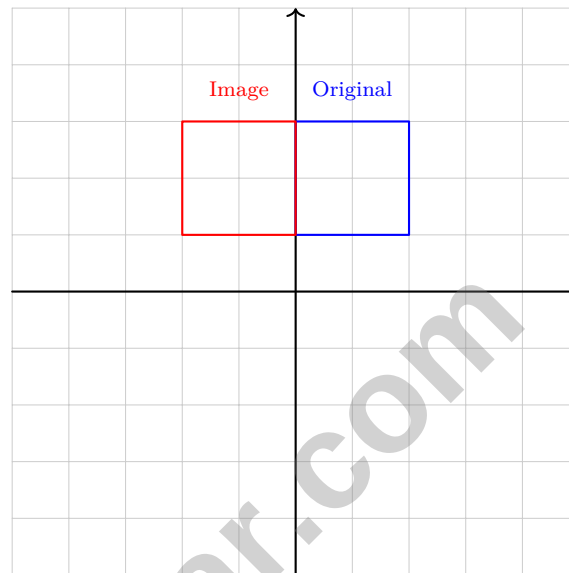
1) Which of these equals $0.\overline{16}$?

☐ A. $\frac{5}{36}$

☐ B. $\frac{16}{99}$

☐ C. $\frac{16}{100}$

☐ D. $\frac{1}{6}$



2)

What single transformation maps the blue figure to the red figure?

☐ A. Reflection across the line $x = 0$ (the y -axis)

☐ B. Translation 3 units left

☐ C. Rotation 180° about $(1, 2)$

☐ D. Dilation with center $(0, 2)$ and scale factor 2

3) A credit card statement shows a beginning balance of \$500, new purchases of \$300, a payment of \$200, and interest of \$15. What is the ending balance?

☐ A. \$500

☐ B. \$600

☐ C. \$615

☐ D. \$800



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

☐ A. $x \leq 13$

☐ C. $x \leq 17$

☐ B. $x \geq 13$

☐ D. $x \geq 17$

5) Evaluate $(2x^3)^2$ when $x = 1$.

6) The inequality $4x - y \geq 8$ is rewritten as $y \leq 4x - 8$. Which region should be shaded?

☐ A. Above the line with a dashed boundary

☐ C. Above the line with a solid boundary

☐ B. Below the line with a solid boundary

☐ D. Below the line with a dashed boundary



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 A is correct.** (KY.8.G.5) Sum for heptagon: $(7 - 2) \times 180 = 900^\circ$. Each angle: $\frac{900}{7} \approx 128.6^\circ \approx 129^\circ$.
- 2) **The correct answer is $(-5, -3)$.** (KY.8.G.3) Subtract coordinates: $(-2, 4) - (3, 7) = (-5, -3)$.
- 3) **The correct answer is 90.** (KY.8.G.5) Let the angles be x , $2x$, and $3x$. Sum: $x + 2x + 3x = 180 \implies 6x = 180 \implies x = 30^\circ$. Largest angle: $3x = 90^\circ$.
- 4) **Choice C is correct.** (KY.8.SP.1) Most students show: more TV $\rightarrow$ lower GPA. This student breaks that pattern with high TV but also high GPA, making this point an outlier that deviates from the trend.
- 5) **Choice A is correct.** (KY.8.SP.2) Smaller residuals indicate a line closer to the data points, which is a better fit.
- 6) **Choice B is correct.** (KY.8.G.7) Corresponding angles are congruent when a transversal cuts parallel lines. So $x = 78^\circ$.
- 7) **Choice A is correct.** (KY.8.G.9) Base area: $B = \frac{1}{2} \times 10 \times 6 = 30 \text{ cm}^2$. Volume: $V = \frac{1}{3} \times 30 \times 15 = 150 \text{ cm}^3$.
- 8) **The correct answer is 10.** (KY.8.G.8) $d = \sqrt{(5 - (-3))^2 + (-2 - 4)^2} = \sqrt{8^2 + (-6)^2} = \sqrt{64 + 36} = \sqrt{100} = 10$ units.
- 9) **Choice B is correct.** (KY.8.SP.3) This is a row-conditional frequency. Girls in sports = $120 - 72 = 48$. Relative to sports players only: $\frac{48}{120} = \frac{2}{5}$.
- 10) **Choice C is correct.** (KY.8.G.9) The tree diagram shows 4 final branches, one for each outcome: HH, HT, TH, TT.
- 11) **Choice D is correct.** (KY.8.NS.1) Since $3^2 = 9$ and $4^2 = 16$, any square root between $\sqrt{9}$ and $\sqrt{16}$ lies between 3 and 4. Because 13 is between 9 and 16, $\sqrt{13}$ is between 3 and 4. Also, $\sqrt{8} \approx 2.83$, $\sqrt{13} \approx 3.61$, $\sqrt{20} \approx 4.47$, and $\sqrt{25} = 5$, so only $\sqrt{13}$ is in the interval from 3 to 4.
- 12) **Choice D is correct.** (KY.8.NS.2) $(4.6)^2 = 21.16$ and $(4.7)^2 = 22.09$. Since 22 is closer to 22.09, $\sqrt{22}$ is closer to 4.7.
- 13) **Choice D is correct.** (KY.8.NS.1) Let $x = 0.7$. Multiply by 10: $10x = 7.7$. Subtract: $10x - x = 7$, so $9x = 7$ and $x = \frac{7}{9}$.
- 14) **Choice C is correct.** (KY.8.G.3) $\sqrt{50} = 5\sqrt{2} \approx 5 \times 1.41 = 7.07$, not 5.0. All other statements are accurate estimates.
- 15) **Choice C is correct.** (KY.8.EE.3) Move the decimal 5 places to the left: $9.0 \times 10^{-5} = 0.00009$.
- 16) **Choice D is correct.** (KY.8.EE.1) 2^3 has 3 factors, 2^4 has 4 factors. Total: $3 + 4 = 7$ factors. This illustrates the product rule: $2^3 \times 2^4 = 2^7$.
- 17) **Choice A is correct.** (KY.8.EE.6) The y -intercept is 3. Using $(4, 1)$: slope = $\frac{1-3}{4-0} = \frac{-2}{4} = -\frac{1}{2}$.
- 18) **The correct answer is B,D.** (KY.8.F.1) Option B: each input $(0, 1, 2, 3)$ has exactly one output $(0, 1, 2, 3)$ —a function. Option D: each input $(5, 6, 7)$ has exactly one output $(1, 2, 3)$ —a function. Option A: input 1 maps to both 2 and 3—not a function. Option C: input 2 maps to both 4 and 5—not a function. Option E: input 1 maps to both 1 and 3—not a function.
- 19) **Choice C is correct.** (KY.8.EE.7) Distribute: $8x - 4 = 3x + 9$. Subtract $3x$ from both sides and add 4 to both sides to get $5x = 13$, so $x = \frac{13}{5}$.
- 20) **Choice B is correct.** (KY.8.F.4) Equation: $C = 35h + 50$. Set $C = 225$: $225 = 35h + 50 \implies 175 = 35h \implies h = 5$ hours.
- 21) **Choice B is correct.** (KY.8.G.6, KY.8.G.7) The rope is the hypotenuse. Using $a^2 + b^2 = c^2$: $60^2 + 25^2 = 3600 + 625 = 4225$, so $c = 65$ feet (scaled 5-12-13 triple).
- 22) **Choice B is correct.** (KY.8.G.7) Trapezoid area = $\frac{1}{2}(b_1 + b_2) \times h = \frac{1}{2}(4 + 6) \times 2 = 10 \text{ m}^2$.
- 23) **Choice C is correct.** (KY.8.G.9) Interest: $I = 6000 \times 0.02 \times 2 = \240 . Total: $6000 + 240 = \$6,240$.
- 24) **Choice D is correct.** (KY.8.EE.2) $e^3 = 1000$, so $e = \sqrt[3]{1000} = 10$ inches.
- 25) **Choice C is correct.** (KY.8.EE.4) Multiply coefficients: $4.8 \times 1.25 = 6$. Add exponents: $10^{-2+2} = 10^0 = 1$. Result: $6 \times 10^0 = 6 \times 1 = 6$.
- 26) **Choice C is correct.** (KY.8.EE.5) Slope $k = \frac{5}{5} = 1$. The line has a 45-degree angle, so $y = x$.
- 27) **Choice A is correct.** (KY.8.EE.8) Rewrite $6x - 2y = 4$ as $y = 3x - 2$. The system has lines $y = 3x + 2$ and $y = 3x - 2$, which have the same slope and different y -intercepts. Therefore, the system has no solution.



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The Power of Showing Work

Hi, Organized Solver!

◇ You practiced Grade 8 skills that often require more than one step. That means your written work matters. ◇

★ **Remember this:** Showing work is not extra. It is how you track your thinking, find errors, and prove that your answer did not happen by luck. You practiced across 8 full Grade 8 practice tests, and that repeated effort matters. ★

Organized Work Habits

- **One Line Per Step:** Keep the path readable.
- **Box the Answer:** Make the final result easy to find.
- **Use Labels:** Tell what each value represents.
- **Check the Path:** Follow your steps backward if needed.

Grade 8 test-day tip: When a problem has several steps, write less on each line. Space makes checking easier.

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

Jay Daie

Your Organized-Work Coach

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror 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.



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!



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More Practice. More Confidence.
Better Results.