

10

Kentucky KSA

GRADE
7
MATH

PRACTICE TESTS

Standards Aligned Problem
Solving For Comprehensive
Assessment Programs



10 PRINTED TESTS

Realistic practice to build
confidence and mastery



2 ONLINE TESTS

Extra practice for
continued success



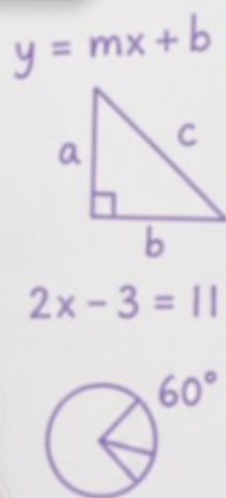
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step
solutions



FOCUSED & EFFECTIVE

Target key math skills
with purposeful practice



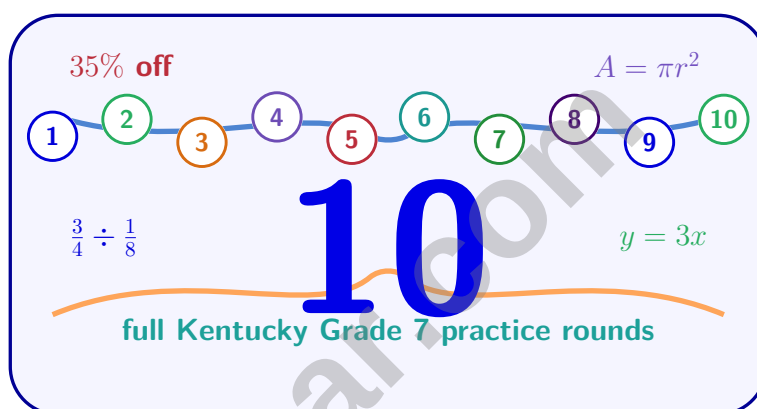
10 PRINTED TESTS
+2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 Kentucky KSA Grade 7 Math Practice Tests

Kentucky Grade 7 KSA Practice for focused preparation through proportional relationships, rational operations, equations, geometry, and data



Ten complete 40-question Grade 7 KSA practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Kentucky Grade 7 Problem Solver!

Ten focused rounds for sharper Kentucky KSA math thinking

This book gives you ten full Grade 7 KSA math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, 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 ten-session plan for confident Grade 7 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 a proportion, equation, diagram, number line, 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?

Ten Kentucky KSA tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 4–6	Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving.
Tests 7–9	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Kentucky round to show growth across the whole book.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



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- 1) A cylinder has a radius of 2 cm and a height of 9 cm. What is the total surface area?
Use $\pi \approx 3.14$.

☐ A. 88.36 cm^2 ☐ C. 138.16 cm^2
☐ B. 112.6 cm^2 ☐ D. 226.08 cm^2

- 2) A baker buys flour in 5-pound bags at \$3 per bag. She also buys yeast for \$2. If she spends \$17 total, which equation represents the number of bags b she bought?

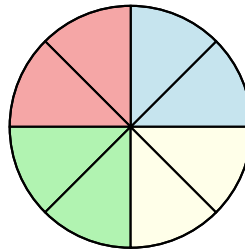
☐ A. $5b + 3 = 17$ ☐ C. $3b + 2 = 17$
☐ B. $3 + 2b = 17$ ☐ D. $5(b + 2) = 17$

- 3) Solve for x : $2(3x - 2) = 14$

☐ A. $x = 2$ ☐ C. $x = 4$
☐ B. $x = 3$ ☐ D. $x = 5$

- 4) A storage container holds x liters. Three identical containers hold how much total volume?

☐ A. $x + 3$ ☐ C. x^3
☐ B. $3x$ ☐ D. $x + x + x + 3$



5)

A spinner has 8 equal sections: 2 blue, 2 red, 2 green, and 2 yellow. Which expression shows the complement rule for finding the probability of NOT spinning blue or red?

☐ A. $\frac{2}{8}$ ☐ C. $1 - \frac{1}{2}$
☐ B. $\frac{3}{8}$ ☐ D. $\frac{6}{8}$



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6) A beverage vendor mixes drinks using one flavor (Cherry, Lime, or Orange) and one temperature (Hot or Cold). A customer drinks 3 of the 6 possible combinations. How many combinations remain untasted?

☐ A. 2☐ C. 4☐ B. 3☐ D. 5

7) A quality control inspector checked 500 items and found 15 defective. Based on this experimental data, if 8000 items are produced, how many are expected to be defective?

☐ A. 15☐ C. 240☐ B. 120☐ D. 485

8) A bicycle wheel has diameter 0.6 meters. If the bike travels 30 meters, how many complete rotations did the wheel make? Use $\pi \approx 3.14$, round to the nearest whole number.

9) Three coins are flipped. What is the probability of getting at least one head?

☐ A. $\frac{1}{8}$ ☐ C. $\frac{6}{8}$ ☐ B. $\frac{3}{8}$ ☐ D. $\frac{7}{8}$ 

10)

Which Estimate is Closest?

Actual temperature: $72^{\circ}F$ Estimate A: $68^{\circ}F$ Estimate B: $75^{\circ}F$

- ☐ A. Estimate A is closer ☐ C. Cannot determine
☐ B. Both equally close ☐ D. Estimate B is closer

11) Expand and simplify: $4(x + 3) - 2(x - 5)$

- ☐ A. $2x + 22$ ☐ C. $2x + 2$
☐ B. $6x + 2$ ☐ D. $6x + 22$

12) What is $-7 - 4$?

- ☐ A. 3 ☐ C. -11
☐ B. -3 ☐ D. 11

13) A model swimming pool has a scale of 1 : 50. If the actual pool volume is 5,000,000 cubic centimeters, what is the model pool volume in cubic centimeters?

- ☐ A. 100,000 cm^3 ☐ C. 4,000 cm^3
☐ B. 40,000 cm^3 ☐ D. 40 cm^3

14) If 12 is 15% of a number, what is the number?

- ☐ A. 60 ☐ C. 80
☐ B. 72 ☐ D. 100



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1) A scalene triangle has one angle of 100° . What can be said about the other two angles?

- ☐ A. Both are less than 90° ☐ C. One is greater than 40° and one is less than 40°
☐ B. Both are greater than 50° ☐ D. At least one is less than 50°

2) A park is shaped like a large rectangle ($30\text{ m} \times 20\text{ m}$) with a triangular picnic area (20 m base, 5 m height) and a circular pond (radius 3 m) inside. What is the open grassy area? (Use $\pi \approx 3.14$.)

- ☐ A. 521.74 m^2 ☐ C. 571.74 m^2
☐ B. 550 m^2 ☐ D. 600 m^2

3) A rectangular prism has length 8 cm , width 6 cm , and height 10 cm . Convert its volume to liters if $1\text{ liter} = 1,000\text{ cm}^3$.

- ☐ A. 0.48 L ☐ C. 48 L
☐ B. 480 L ☐ D. 4.8 L

4) Expand and simplify: $5(x - 2) + 3(x + 4)$

- ☐ A. $8x + 22$ ☐ C. $5x + 7$
☐ B. $8x + 12$ ☐ D. $8x + 2$

5) Identify the expression that is already simplified.

- ☐ A. $2x + 3x + 4y$ ☐ C. $7m + 3n - 2p$
☐ B. $5a + 3a + 2b$ ☐ D. $4c + 2c + 5c$



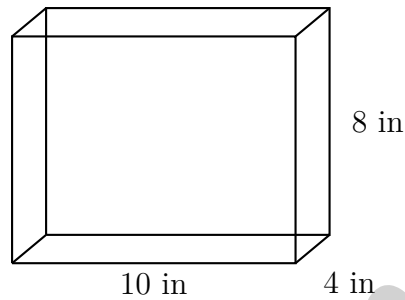
6) Factor: $4c - 12d$

☐ A. $4(c - 3d)$

☐ B. $2(2c - 6d)$

☐ C. $12(c - d)$

☐ D. $c(4 - 12d)$



7)

The rectangular prism shown has dimensions $10\text{ in} \times 8\text{ in} \times 4\text{ in}$. Calculate the surface area.

☐ A. 320 in^2

☐ B. 304 in^2

☐ C. 240 in^2

☐ D. 160 in^2

8) An investment earns \$240 in simple interest from a principal of \$2000 over 4 years. What is the annual interest rate as a decimal?

9) A baker estimated she would need 2.8 cups of flour for a recipe that actually requires 3.2 cups. What is the percent error? Round to the nearest whole percent.



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- 1) A recipe for cookies uses a flour-to-butter ratio of 8 : 3. Which of the following quantities represents the same ratio?
- ☐ A. 12 cups flour, 4 cups butter ☐ C. 8 cups flour, 6 cups butter
☐ B. 24 cups flour, 8 cups butter ☐ D. 16 cups flour, 6 cups butter
- 2) What angle corresponds to 50% of a circle?
- ☐ A. 90° ☐ C. 270°
☐ B. 180° ☐ D. 360°
- 3) A temperature reading shows -5°F in the morning. By afternoon, the temperature increases by 18°F . What is the afternoon temperature?
- ☐ A. -23°F ☐ C. 23°F
☐ B. 13°F ☐ D. -13°F
- 4) Which value is NOT equivalent to 5.0×10^3 ?
- ☐ A. 5,000 ☐ C. 0.5×10^4
☐ B. 50×10^2 ☐ D. 0.05×10^3
- 5) Combine like terms: $(7a + 9) - (3a - 4)$
- ☐ A. $4a + 13$ ☐ C. $10a + 5$
☐ B. $4a + 5$ ☐ D. $4a - 13$
- 6) Simplify: $z^5 \cdot z^4 \cdot z^2$
- ☐ A. z^{11} ☐ C. z^9
☐ B. z^{20} ☐ D. z^{40}



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7) Which situation matches the equation $2x + 7 = 21$?

- ☐ A. Two items costing \$2 each and a \$7 item total \$21.
- ☐ B. Seven items costing \$2 each and a \$7 tax total \$21.
- ☐ C. x is increased by 2, then by 7, to get 21.
- ☐ D. A number is doubled, then 7 is added, resulting in 21.

8) A spinner has 8 equal sections: 3 labeled A , 2 labeled B , 2 labeled C , and 1 labeled D . Find $P(A)$ as a fraction in lowest terms.



9) A taxi charges \$2.50 per mile plus a \$3 base fee. If a ride costs \$13, how many miles was the ride?

- ☐ A. 2 miles
- ☐ B. 4 miles
- ☐ C. 6 miles
- ☐ D. 8 miles

10) A teacher buys 5 notebooks at \$ x each and spends a total of \$45 (including a \$5 coupon discount). What is the price per notebook?

- ☐ A. \$8
- ☐ B. \$9
- ☐ C. \$10
- ☐ D. \$12

11) Solve: $0.5x + 3.5 = 8.5$

- ☐ A. $x = 5$
- ☐ B. $x = 10$
- ☐ C. $x = 12$
- ☐ D. $x = 14$



Kentucky KSA Grade 7 Practice Test Answer Keys**How to use this section with a Grade 7 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.** (7.G.4-7.G.6) $SA = 2\pi r^2 + 2\pi rh \approx 2(3.14)(2^2) + 2(3.14)(2)(9) = 2(3.14)(4) + 113.04 = 25.12 + 113.04 = 138.16 \text{ cm}^2$.
- 2) **Choice C is correct.** (7.EE.4a) Each bag costs \$3 and yeast is \$2. Equation: $3b + 2 = 17$.
- 3) **Choice B is correct.** (7.EE.4a) Distribute: $6x - 4 = 14$. Add 4: $6x = 18$. Divide by 6: $x = 3$.
- 4) **Choice B is correct.** (7.EE.1-7.EE.2) Three containers of x liters each can be written as $x + x + x$ or $3 \times x = 3x$. This multiplication form is the most efficient equivalent expression for repeated addition.
- 5) **Choice C is correct.** (7.SP.5-7.SP.8) Blue or red: $\frac{4}{8} = \frac{1}{2}$. Complement: $1 - \frac{1}{2} = \frac{1}{2} = \frac{4}{8}$.
- 6) **Choice B is correct.** (7.SP.5-7.SP.8) Total combinations: $3 \times 2 = 6$. Tasted: 3. Remaining: $6 - 3 = 3$ combinations.
- 7) **Choice C is correct.** (7.SP.6) Experimental probability of defect = $\frac{15}{500} = 0.03$. Expected defects in 8000: $0.03 \times 8000 = 240$.
- 8) **The correct answer is 16.** (7.G.4-7.G.6) Circumference = $\pi d = 3.14 \times 0.6 = 1.884 \text{ m}$. Rotations = $30 \div 1.884 \approx 16$.
- 9) **Choice D is correct.** (7.SP.5-7.SP.8) Easier using complement: $P(\text{at least one head}) = 1 - P(\text{all tails}) = 1 - \frac{1}{8} = \frac{7}{8}$.
- 10) **Choice D is correct.** (7.RP.3) Estimate A: $\frac{|68-72|}{72} \times 100\% \approx 5.6\%$. Estimate B: $\frac{|75-72|}{72} \times 100\% \approx 4.2\%$. Estimate B has smaller error.
- 11) **Choice A is correct.** (7.EE.1-7.EE.2) Expand: $4x + 12 - 2x + 10 = 2x + 22$. Combine like terms.
- 12) **Choice C is correct.** (7.NS.1-7.NS.3) $-7 - 4 = -7 + (-4) = -11$.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) Linear scale is 1 : 50. Volume scales by $(1/50)^3 = 1/125,000$. Model volume = $5,000,000 \div 125,000 = 40 \text{ cm}^3$.
- 14) **Choice C is correct.** (7.RP.3) If $12 = 0.15 \times n$, then $n = \frac{12}{0.15} = 80$.
- 15) **Choice D is correct.** (7.RP.3) Item 1: \$75 (since $60 = \text{orig} \times 0.80$); Item 2: \$75 (since $60 + 15 = \$75$). Both were \$75.
- 16) **Choice D is correct.** (7.RP.3) $270 = 3000 \times r \times 2 \Rightarrow 270 = 6000r \Rightarrow r = 0.045 = 4.5\%$.
- 17) **The correct answer is 75–85.** (7.SP.3) Overlap at 75–85 demonstrates that distributions can have different centers and spreads while still sharing common values. A higher median does not mean every value in one group exceeds every value in the other.
- 18) **Choice A is correct.** (7.EE.1) Combine: $(10 - 3 + 7)m = 14m$.
- 19) **Choice A is correct.** (7.EE.1-7.EE.2) $(8x + 12) - (4x + 6) = 4x + 6$. Note: $8x + 12 = 2(4x + 6)$, so the pieces are equal.
- 20) **Choice C is correct.** (7.SP.1-7.SP.4) Rent and Savings are both 30%, the largest percentage. Food is 25% and utilities is 15%.
- 21) **Choice A is correct.** (7.NS.1b) Both numbers are negative; add absolute values: $|-28| + |-15| = 28 + 15 = 43$, and keep the negative sign: -43 .
- 22) **The correct answer is A,B.** (7.G.4-7.G.6) A is correct: volume $V = B \times h$ for any prism. B is correct: $V = 4^3 = 64 \text{ cm}^3$. C is false: doubling height doubles volume, not triples it. D is false: a triangular prism can have larger volume than a rectangular prism depending on dimensions.
- 23) **The correct answer is 46.5.** (7.SP.1-7.SP.4) The ordered values are 31, 34, 37, 42, 45, 48, 49, 50, 53, 56. With 10 values, the median is the average of the 5th and 6th values: $(45 + 48) \div 2 = 46.5$.
- 24) **Choice C is correct.** (7.EE.1-7.EE.2) Substitute: $3(2 + (-3)) = 3(-1) = -3$.
- 25) **Choice A is correct.** (7.EE.4b) Subtract 3: $-2x < 6$. Divide by -2 and flip the sign: $x > -3$.
- 26) **Choice D is correct.** (7.RP.1-7.RP.3) The unit-rate point (1, 0.8) shows that $k = 0.8$, so the equation is $y = 0.8x$.
- 27) **Choice C is correct.** (7.RP.3) Debt repayment = $(100\% - 40\% - 35\%) \times \$2,000 = 25\% \times 2000 = \500 .
- 28) **The correct answer is $\frac{1}{4}$.** (7.SP.5-7.SP.8) Total = 20 marbles. $P(\text{green}) = \frac{5}{20} = \frac{1}{4}$.
- 29) **Choice A is correct.** (7.NS.1-7.NS.3) When adding two negative numbers, add their absolute values and keep the negative sign: $-5 + (-2) = -(5 + 2) = -7$.
- 30) **Choice B is correct.** (7.NS.1-7.NS.3) Descent of 336 m is -336 . Rate: $(-336) \div 12 = -28 \text{ m/s}$. Negative indicates downward motion.



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Hi, Math Hero!

◇ This full-length book gave you ten complete Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 7 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

★ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ★

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 7 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 10 full-length Math practice tests and 2 extra online tests to help Grade 7 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

Perfect for classroom use, homework, test preparation, and extra practice at home.

THIS BOOK INCLUDES:

10 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answer Explanations



MORE PRACTICE. GREATER RESULTS.

Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

WHAT YOU'LL GAIN



Stronger Math Skills

Build a solid foundation through targeted practice and review.



Better Problem Solving

Develop logical thinking and effective solution strategies.



Deeper Understanding

Reinforce key concepts with clear explanations and meaningful practice.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Achieve Success

Build confidence and perform your best on test day.

TOPICS COVERED

- ✓ Ratios & Proportions
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Fractions & Decimals
- ✓ Percents
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ And More!



2 EXTRA ONLINE TESTS

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



2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

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BRIGHTLY

PRACTICE ★ REVIEW ★ SUCCEED