

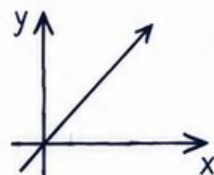
4

Kansas
KAPGRADE
7
MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

$$y = mx + b$$



$$\frac{2x}{3} + \frac{x}{6} = 2$$



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

4 PRINTED
TESTS2 ONLINE
TESTS

USE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTS

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.



Build
Confidence



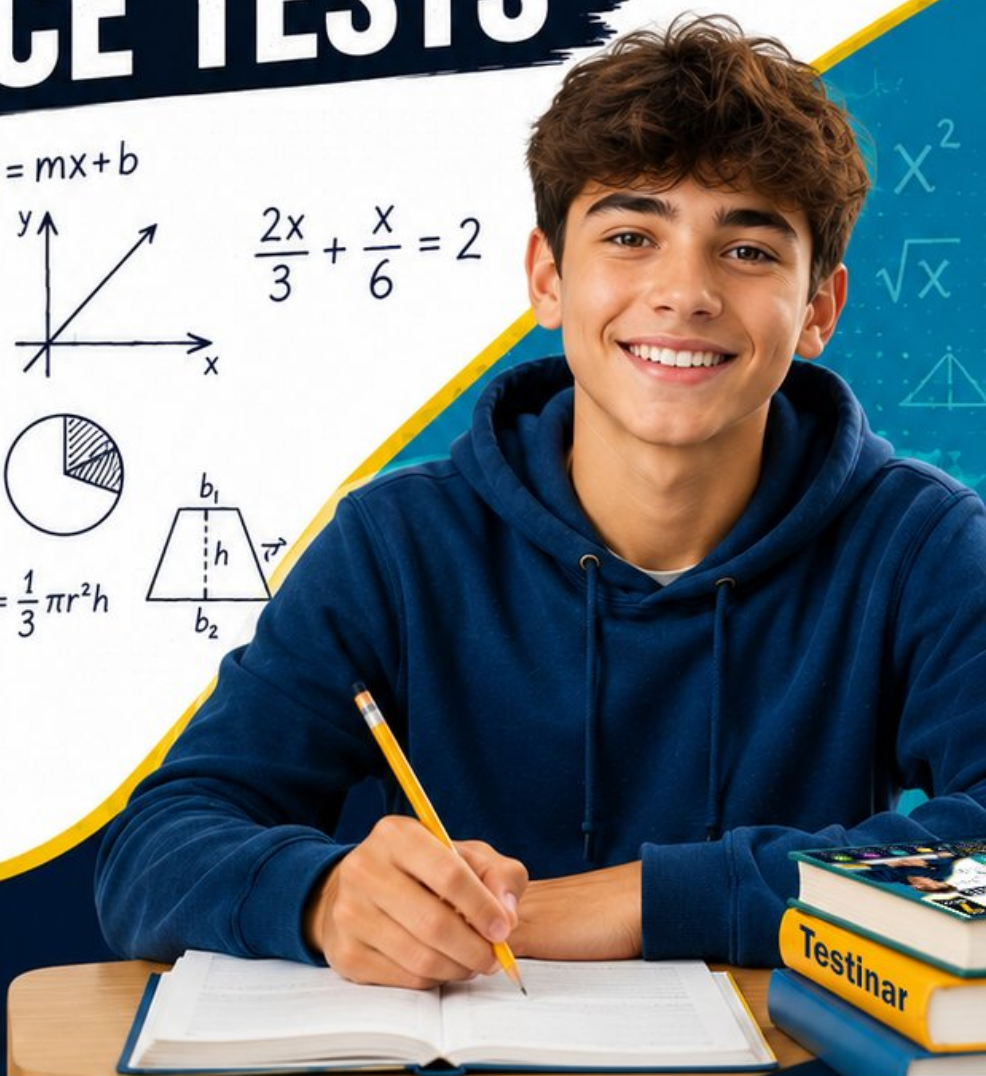
Strengthen
Math Skills



Detailed Answers
& Explanations

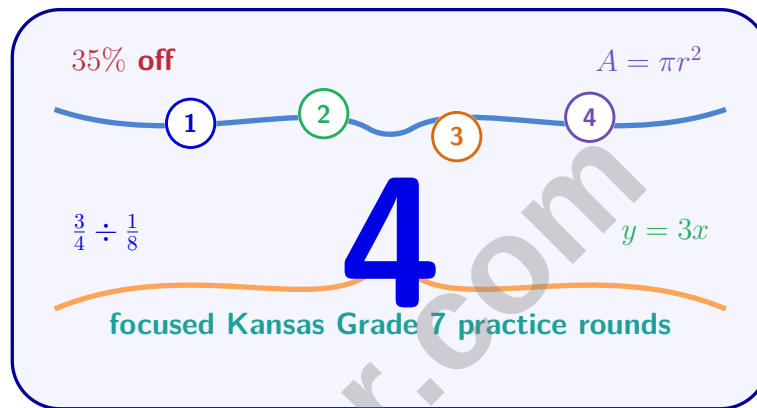


Improve Test
Performance



4 Kansas KAP Grade 7 Math Practice Tests

Kansas Readiness Practice with Clear Keys and Explanations



Four complete 40-question Grade 7 KAP 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, Kansas Grade 7 Problem Solver!

Four focused rounds for sharper KAP math thinking

This book gives you four full Grade 7 KAP 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 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 four-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.

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?

Four KAP tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 3–4	Expressions, equations, inequalities, scale drawings, geometry, data, probability, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

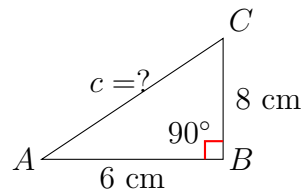
The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.



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& answers

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1)

Two sides of a triangle are 6 cm and 8 cm. The angle between them is 90° . What is the hypotenuse?

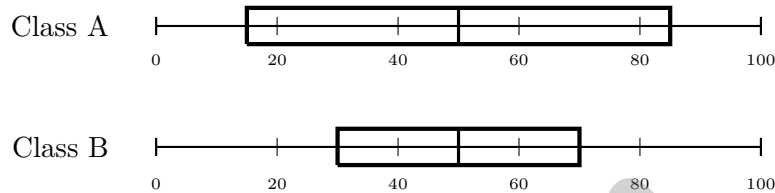
☐ A. 10 cm☐ C. 2 cm☐ B. 14 cm☐ D. $\sqrt{28}$ cm2) A coin has circumference 6.28 cm. Using $\pi \approx 3.14$, what is its radius?☐ A. 1 cm☐ C. 3 cm☐ B. 2 cm☐ D. 4 cm3) A circular rug has a radius of 2.5 meters. What is the approximate area of the rug?
Use $\pi \approx 3.14$.☐ A. 7.85 m^2 ☐ C. 19.625 m^2 ☐ B. 15.7 m^2 ☐ D. 39.25 m^2 4) What is the opposite of the opposite of -3 ?

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5) A cylindrical flower pot has a diameter of 8 cm and a height of 10 cm. What is the volume? Use $\pi \approx 3.14$.

- ☐ A. 100.48 cm^3 ☐ C. 502.4 cm^3
☐ B. 251.2 cm^3 ☐ D. 1004.8 cm^3

6) Two box plots show test scores from two classes:



Which is most true?

- ☐ A. Class A has a wider overall range ☐ C. Both classes have identical medians
☐ B. Class B has a smaller box (IQR), shown by whiskers indicating less variability in the middle ☐ D. Class A is easier than Class B 50%
- 7) A circle graph shows a restaurant's revenue: Food Sales 60%, Beverages 25%, Merchandise 10%, Other 5%. The Food Sales sector has a central angle of how many degrees?
- ☐ A. 216 degrees ☐ C. 60 degrees
☐ B. 150 degrees ☐ D. 240 degrees
- 8) A student compared two dot plots and made this claim: "Distribution A has a median of 50 and Distribution B has a median of 55, so B is always greater." Identify the error.

- ☐ A. Median is typical value, not a guarantee; distributions can overlap ☐ C. Distribution A must be higher
☐ B. Medians are always accurate ☐ D. Comparison requires ranges, not medians



9) A pair of fair dice is rolled once. What is the probability of rolling a sum of 7 OR a sum of 11?

☐ A. $\frac{6}{36}$

☐ B. $\frac{8}{36}$

☐ C. $\frac{2}{36}$

☐ D. $\frac{14}{36}$

10) A student rolled a number cube and recorded the results in a bar graph. Out of 240 rolls, the number 6 appeared in 38 rolls. What is the experimental probability of rolling a 6?

☐ A. $\frac{1}{6}$

☐ B. $\frac{38}{240}$

☐ C. 0.19

☐ D. 0.60

11) A scientist measures plant stem diameters (mm) and displays them in a stem-and-leaf plot:

Stem	Leaves
1	4, 7
2	1, 5, 8
3	2, 4, 6, 9

The lower quartile (Q1) falls between which two values?

☐ A. 17 and 21

☐ B. 21 and 25

☐ C. 25 and 28

☐ D. 28 and 32

12) A mosaic is a square ($14 \text{ cm} \times 14 \text{ cm}$) with four identical corner triangles removed (each $3 \text{ cm} \times 3 \text{ cm}$ right triangle). What is the remaining area?

☐ A. 160.5 cm^2

☐ B. 178 cm^2

☐ C. 196 cm^2

☐ D. 205.5 cm^2



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1) Convert $\frac{1}{5}$ to a decimal.

☐ A. 0.15

☐ C. 0.5

☐ B. 0.2

☐ D. 0.51

2) A scale model of a car is built with a scale of 1 : 24. If the model is 20 cm long, how long is the actual car?

☐ A. 2 m

☐ C. 5 m

☐ B. 4.8 m

☐ D. 480 m

3) What is $-\frac{1}{2} \times 10$?

☐ A. -20

☐ C. 5

☐ B. -5

☐ D. 20

4) Between which two consecutive integers does $\sqrt{200}$ lie?

☐ A. between 12 and 13

☐ C. between 14 and 15

☐ B. between 13 and 14

☐ D. between 15 and 16

5) A student is making a scale model. The scale is 1 inch = 4 feet. The actual length is 16 feet. The student finds the model length by multiplying: $16 \times 4 = 64$ inches. Is this correct?

☐ A. Yes, the calculation is correct

☐ C. No; the correct answer is 2 inches

☐ B. No; the correct answer is 8 inches

☐ D. No; the correct answer is 4 inches

6) Which equation does NOT represent the additive inverse property?

☐ A. $-7 + 7 = 0$

☐ C. $-20 + 0 = -20$

☐ B. $35 + (-35) = 0$

☐ D. $100 + (-100) = 0$



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Combining Terms: $5a + 2b - 3a + 4b$ Like terms with a :

$$5a \text{ and } -3a \rightarrow (5 - 3)a = 2a$$

Like terms with b :

$$2b \text{ and } 4b \rightarrow (2 + 4)b = 6b$$

Answer: $2a + 6b$

7)

Using the strategy shown above, simplify $8x + 3y - 5x - 2y$.

☐ A. $13x + y$

☐ C. $3x + 5y$

☐ B. $3x + y$

☐ D. $11xy$

8) Which shows $20y + 24$ factored completely?

☐ A. $4(5y + 6)$

☐ C. $8(2.5y + 3)$

☐ B. $2(10y + 12)$

☐ D. $6(3.33y + 4)$

9) Which inequality represents “a number decreased by 7 is less than or equal to 12”?

☐ A. $n - 7 \leq 12$

☐ C. $n + 7 \leq 12$

☐ B. $7 - n \leq 12$

☐ D. $n \leq 19$

10) A cube has surface area 600 cm^2 . What is its edge length?

☐ A. 5 cm

☐ C. 100 cm

☐ B. 10 cm

☐ D. 3600 cm

11) A survey question asks: “In your opinion, is the new school lunch program much better than the old one?” This question has a problem because:

☐ A. It uses a loaded word (“much better”)

☐ C. It requires too much opinion

☐ B. It is too long

☐ D. It is too vague



1) A student writes the equation $y = 0.5x + 3$ to model a scenario. Is this a proportional relationship? Explain why or why not.

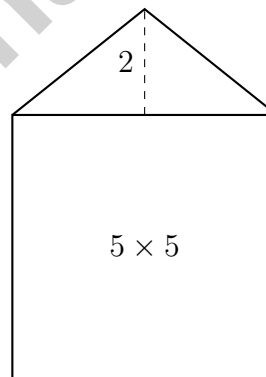
- ☐ A. Yes, the slope is 0.5.
 ☐ D. No, there is a constant term (+3) so it does not pass through the origin.
- ☐ B. No, the constant is greater than 1.
- ☐ C. Yes, all linear equations are proportional.

2) The stem-and-leaf plot shows quiz scores from two classes:

	Class A	Stem	Class B
Back-to-back Stem-and-Leaf Plot	9, 5, 1	7	2, 4, 8
	8, 6	8	1, 3, 5, 7
		9	0, 2, 6

Which class has the higher median?

- ☐ A. Class A
 ☐ C. Both have equal medians
- ☐ B. Class B
 ☐ D. Cannot be determined



3)

A decorative tile is a square (5 cm $\times$ 5 cm) with an isosceles triangle attached to the top (base 5 cm, height 2 cm). What is the total area?

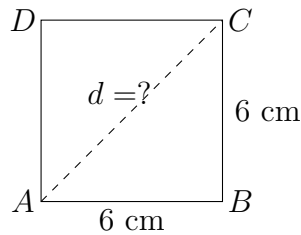
- ☐ A. 10 cm²
☐ C. 30 cm²
- ☐ B. 25 cm²
☐ D. 35 cm²



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- 4) A trapezoidal prism has a base with parallel sides of 7 cm and 9 cm and height 4 cm. The prism has a depth of 5 cm. What is the volume?

- ☐ A. 320 cm^3
☐ C. 160 cm^3
☐ B. 240 cm^3
☐ D. 80 cm^3



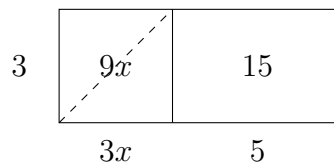
5)

A square has a side length of 6 cm. What is the length of its diagonal?

- ☐ A. 6 cm
 ☐ C. 12 cm
☐ B. $6\sqrt{2}$ cm
 ☐ D. $\sqrt{36}$ cm

- 6) Which segment is NOT a chord?

- ☐ A. A diameter
 ☐ D. A segment through the center connecting two points on the circle
☐ B. A radius
☐ C. A segment with both endpoints on the circle



7)

The area model above represents the factorization of $9x + 15$. What is the common factor shown as the height?

- ☐ A. 3
 ☐ C. 9
☐ B. 5
 ☐ D. 15



Kansas KAP 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 Kansas KAP practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (7.G.1-7.G.5) Hypotenuse = $\sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10$ cm. This is the 6-8-10 Pythagorean triple.
- 2) **Choice A is correct.** (7.G.4-7.G.6) $C = 2\pi r \Rightarrow 6.28 = 2 \times 3.14 \times r \Rightarrow 6.28 = 6.28r \Rightarrow r = 1$ cm.
- 3) **Choice C is correct.** (7.G.4-7.G.6) $A = 3.14 \times (2.5)^2 = 3.14 \times 6.25 = 19.625$ m².
- 4) **The correct answer is -3.** (7.NS.1-7.NS.3) The opposite of -3 is 3, and the opposite of 3 is -3.
- 5) **Choice C is correct.** (7.G.4-7.G.6) Radius is half diameter: $r = 4$ cm. $V = \pi r^2 h \approx 3.14 \times 16 \times 10 = 502.4$ cm³.
- 6) **Choice B is correct.** (7.SP.1-7.SP.4) Class A's box spans x-coordinates 1.5 to 8.5 (map to scores 30-85, IQR = 55), median 50. Class B's box spans 3 to 7 (map to scores 60-70, IQR = 10), median 50. Class B's smaller box means less spread in the middle 50% of scores, despite both having the same median.
- 7) **Choice A is correct.** (7.SP.1-7.SP.4) Central angle = $\frac{60\%}{100\%} \times 360^\circ = 0.60 \times 360^\circ = 216^\circ$.
- 8) **Choice A is correct.** (7.SP.3) Median shows the center/typical value. Even if B's median (55) exceeds A's (50), overlap means some values in A exceed some in B. Median comparison shows typical difference, not individual comparisons.
- 9) **Choice B is correct.** (7.SP.5-7.SP.8) Sum of 7: (1,6), (2,5), (3,4), (4,3), (5,2), (6,1) = 6 ways. Sum of 11: (5,6), (6,5) = 2 ways. Total: 8 out of 36.
- 10) **Choice B is correct.** (7.SP.6) Experimental probability = $\frac{\text{observed favorable outcomes}}{\text{total trials}} = \frac{38}{240} \approx 0.158$. This is the relative frequency from the observed data.
- 11) **Choice A is correct.** (7.SP.1-7.SP.4) Nine values: 14, 17, 21, 25, 28, 32, 34, 36, 39. Lower half: 14, 17, 21, 25 (4 values). Q1 is median of lower half: $(17 + 21)/2 = 19$, which falls between 17 and 21.
- 12) **Choice B is correct.** (7.G.4-7.G.6) Start with the square: $14 \times 14 = 196$ cm². Subtract the four corner triangles: $4 \times (\frac{1}{2} \times 3 \times 3) = 18$ cm². Remaining: $196 - 18 = 178$ cm².
- 13) **Choice A is correct.** (7.G.4-7.G.6) $\pi \approx 3.14159 \dots$. The common approximations are 3.14 and $\frac{22}{7} \approx 3.142857$.
- 14) **The correct answer is -30.** (7.NS.2) Change per minute is -7.5 meters. After 4 minutes: $(-7.5) \times 4 = -30$ meters.
- 15) **The correct answer is 11.** (7.NS.1-7.NS.3) $\sqrt{25} = 5$ and $\sqrt{36} = 6$, so $5 + 6 = 11$.
- 16) **Choice B is correct.** (7.G.1-7.G.5) The third angle is $180^\circ - 30^\circ - 50^\circ = 100^\circ$. With two known angles and one known side, we have ASA (Angle-Side-Angle) or AAS (Angle-Angle-Side), both of which determine a unique triangle.
- 17) **Choice A is correct.** (7.SP.5-7.SP.8) An event and its complement sum to 1. Here, $\frac{2}{3} + \frac{1}{3} = \frac{3}{3} = 1$, so both probabilities are correct.
- 18) **The correct answer is A,D.** (7.RP.1-7.RP.3) A and D are unit rates because each gives a price per single unit of weight. Option B is a distance, and option C is a total count.
- 19) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{42}{150} = \frac{x}{500}$. Simplify: $\frac{7}{25} = \frac{x}{500} \Rightarrow x = 140$.
- 20) **Choice D is correct.** (7.NS.1-7.NS.3) $-7 - (-7) = -7 + 7 = 0$. Any number minus itself equals 0.
- 21) **Choice D is correct.** (7.RP.3) 150% of 2 is $1.50 \times 2 = 3$ cups.
- 22) **Choice D is correct.** (7.RP.3) Markup: $55 \times 1.40 = \$77$. Tax on \$77: $0.08 \times 77 = \$6.16$. Total: $77 + 6.16 = \$83.16$.
- 23) **Choice A is correct.** (7.SP.1-7.SP.4) $108^\circ \div 360^\circ \times 100 = 30\%$.
- 24) **Choice C is correct.** (7.RP.3) The shaded portion represents 60 out of 100 units. Set up the proportion: $\frac{60}{100} = \frac{p}{100}$, so $p = 60\%$.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) First: $\frac{150}{2/3} = 150 \times \frac{3}{2} = 225$ \$/hr. Second: $\frac{140}{3/5} = 140 \times \frac{5}{3} = \frac{700}{3} \approx 233.33$ \$/hr. First is less.
- 26) **Choice D is correct.** (7.RP.1-7.RP.3) Each ratio: $12/1 = 12$, $24/2 = 12$, $36/3 = 12$, $48/4 = 12$. Constant rate of \$12 per shirt.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) The variables were reversed. Since a represents apples and p represents price, price should depend on apples: $p = \frac{10}{4}a = 2.5a$, not $a = \frac{10}{4}p$.
- 28) **Choice D is correct.** (7.RP.1-7.RP.3) Unit price = $\$4.50 \div 6 = \0.75 per apple.



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Hi, Future Algebra Thinker!

◇ Grade 7 practice prepares you for the next math steps. Expressions, equations, proportional relationships, and graphs are all part of that bridge. This carefully paced book gave you four steady Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Every time you solved for an unknown or explained a relationship, you were building skills that future math will use again. ★

Bridge Skills

- **Use Variables:** Let letters stand for unknown values.
- **Balance Equations:** Keep both sides fair.
- **Read Graphs:** Connect points to meaning.
- **Compare Rates:** Look for constant relationships.

Grade 7 test-day tip: When you see a variable, say what it represents. That keeps algebra connected to the problem.

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

Jay Daie

Your Algebra Bridge Coach

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