

10 Colorado CMAS

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



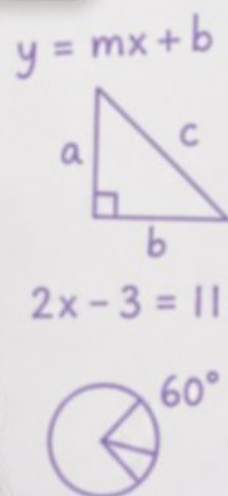
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step solutions



FOCUSED & EFFECTIVE

Target key math skills with purposeful practice



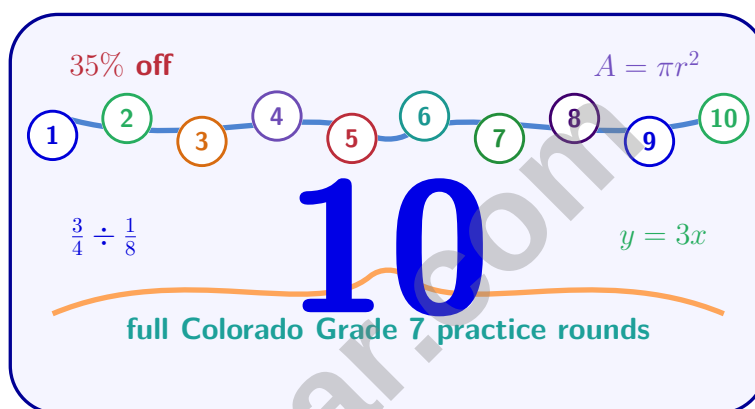
10 PRINTED TESTS
+2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 Colorado CMAS Grade 7 Math Practice Tests

Colorado Grade 7 CMAS Practice for mountain-strong review for proportional reasoning, equations, scale drawings, data, and probability



Ten complete 40-question Grade 7 CMAS 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, Colorado Grade 7 Problem Solver!

Ten focused rounds for sharper Colorado CMAS math thinking

This book gives you ten full Grade 7 CMAS 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 Colorado 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.

Colorado 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 Colorado CMAS 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 Colorado 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 coin was flipped 1000 times as part of an experiment to test the law of large numbers. The results showed 495 heads and 505 tails. Which statement best explains this outcome?

- ☐ A. The coin is unfair because heads appeared fewer times.
- ☐ B. With a large number of trials, the experimental probability approaches the theoretical probability.
- ☐ C. The coin should show exactly 500 heads and 500 tails.
- ☐ D. This result proves the coin is biased toward tails.

2) What is $\sqrt{144}$?

- ☐ A. 10
- ☐ B. 11
- ☐ C. 12
- ☐ D. 14

3) A circle has an area of 314 m^2 . What is its radius? (Use $\pi \approx 3.14$.)

4) Simplify: $(-4t + 12) + (7t - 5)$

- ☐ A. $3t + 7$
- ☐ B. $3t - 7$
- ☐ C. $-11t + 7$
- ☐ D. $11t + 7$

5) Which value of x satisfies $4x + 2 = 18$?

- ☐ A. $x = 2$
- ☐ B. $x = 4$
- ☐ C. $x = 5$
- ☐ D. $x = 8$



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6) A histogram shows the distribution of test scores for two classes with the same mean (80) but different shapes: Class A is symmetric (bell-shaped), Class B is right-skewed (tail on right). What does this tell you about variability?

- ☐ A. Class A has higher variability ☐ D. Both classes have the same variability
- ☐ B. Class B has higher variability
- ☐ C. You cannot determine variability from shape alone

7) A deck of cards has 52 cards. What is the probability of drawing a face card (Jack, Queen, or King) from a standard deck?

- ☐ A. $\frac{12}{52}$ ☐ C. $\frac{4}{13}$
- ☐ B. $\frac{2}{13}$ ☐ D. $\frac{1}{4}$

8) A menu offers 4 drinks, 6 main courses, and 3 desserts. How many complete meals can be ordered if you choose one of each?

- ☐ A. 13 ☐ C. 72
- ☐ B. 24 ☐ D. 84

9) A cylindrical can contains 301.44 cubic inches of soup. If the radius is 3 inches, what is the height of the can? Use $\pi \approx 3.14$.



10) 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. $\frac{14}{36}$

11) The stem-and-leaf plot displays class test scores:

Stem	Leaves
7	2, 5, 8, 8
8	1, 3, 5, 6, 9
9	0, 2, 4, 7

What is the median score?

☐ A. 85
☐ B. 84

☐ C. 83
☐ D. 82

12) Which statement describes an event with probability 1?

- ☐ A. Drawing a red card from a shuffled deck
☐ B. Picking a number from 1 to 10 that is less than 11

- ☐ C. Flipping a coin and getting heads
☐ D. Rolling a number greater than 6 on a standard die

13) A scout estimated that a hiking trail is 7.5 miles long, but the actual length is 8.25 miles. What is the percent error?

☐ A. 90.9%
☐ B. 10%

☐ C. 0.75%
☐ D. 9.1%



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Like Terms Table

x terms	y terms
$3x, 5x, -2x$	$4y, y, -3y$

1)

Which expression is equivalent to the combined like terms shown in the table?

☐ A. $6x + 2y$

☐ C. $-10xy$

☐ B. $8x + 5y$

☐ D. $10x + 2y$

2) Two dot plots show monthly snowfall (in inches) for Mountain Town A and B. Town A: 2, 4, 4, 6, 6, 6, 6, 8, 10. Town B: 0, 1, 5, 8, 12, 14. The town council needs predictable snow for budget planning. Which town's snowfall is more predictable?

☐ A. Town A (data clusters at 4–8 inches)

☐ C. Town A's range (8 inches) is smaller, but Town B is more

☐ B. Town B (wider range allows better diversity)

☐ D. Town B (extreme values of 0 and

☐ 14 are more informative for planning)

3) A data set has values: 12, 15, 15, 18, 21, 23, 24, 28. Which is the correct stem-and-leaf plot?

☐ A. Stem 1: 2, 5, 5, 8; Stem 2: 1, 3, 4, 8

☐ C. Stem 1: 2, 5, 5, 8; Stem 2: 3, 4, 8, 1

☐ B. Stem 1: 1, 2, 5, 5; Stem 2: 1, 3, 4, 8

☐ D. Stem 1: 1, 2, 3, 4; Stem 2: 1, 5, 5, 8

4) A retailer buys items for \$80 and marks them up by 55%. What is the selling price?



- 5) A composite figure is formed by a square ($8\text{ m} \times 8\text{ m}$) with a right triangle (legs 8 m and 3 m) attached to one side. What is the total area?

☐ A. 64 m^2

☐ C. 88 m^2

☐ B. 76 m^2

☐ D. 100 m^2

- 6) How much principal is needed to earn \$500 in simple interest at 5% per year over 4 years?



- 7) A rectangular prism with a square base has a base perimeter of 20 cm and a height of 8 cm . What is the volume? (Hint: find the side length of the square first.)

☐ A. 100 cm^3

☐ C. 200 cm^3

☐ B. 160 cm^3

☐ D. 400 cm^3

- 8) Expand: $(4a + 6) \cdot \frac{1}{2}$

☐ A. $2a + 6$

☐ C. $4a + 3$

☐ B. $2a + 3$

☐ D. $a + 6$

- 9) Factor: $16a + 24b + 8$

☐ A. $8(2a + 3b + 1)$

☐ C. $16(a + 1.5b + 0.5)$

☐ B. $4(4a + 6b + 2)$

☐ D. $2(8a + 12b + 4)$



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1) Simplify: $(-3q - 7) + (8q + 2)$

☐ A. $5q - 5$

☐ C. $11q - 5$

☐ B. $5q + 5$

☐ D. $-5q - 5$

2) A university surveyed 3200 students about their housing. The circle graph shows 23% live off-campus. How many students live off-campus?

☐ A. 230

☐ C. 736

☐ B. 640

☐ D. 2464

3) A microscopic organism measures 0.000003 cm. What is this measurement in scientific notation?

☐ A. 3×10^{-5}

☐ C. 3×10^5

☐ B. 3×10^{-6}

☐ D. 0.3×10^{-5}

4) Simplify: $(d^2)^5$

☐ A. d^{10}

☐ C. d^{32}

☐ B. d^7

☐ D. $2d^{10}$

5) A streaming service costs \$12.99 per month plus a one-time setup fee of \$19.99. Which expression shows the total cost C for n months?

☐ A. $C = 19.99 + 12.99n$

☐ C. $C = 19.99(n + 12.99)$

☐ B. $C = 19.99n + 12.99$

☐ D. $C = 12.99n + 12.99$

6) 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

☐ C. 6 miles

☐ B. 4 miles

☐ D. 8 miles



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7) Solve: $4x - 9 = -1$ and verify by substituting back.

☐ A. $x = -2$

☐ C. $x = 2$

☐ B. $x = 0$

☐ D. $x = 4$

8) A photograph is scaled down by a factor of $\frac{1}{4}$. If the original photograph is 8 inches wide, what is the width of the scaled version?

☐ A. 1 inch

☐ C. 4 inches

☐ B. 2 inches

☐ D. 6 inches

9) A right circular cone with base radius 4 cm and height 12 cm is sliced by a plane that is 8 cm from the apex and parallel to the base. What is the radius of the circular cross-section?

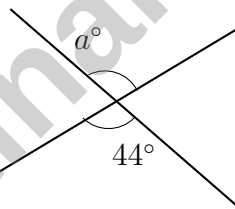
☐ A. $\frac{8}{3}$ cm

☐ C. $\frac{8}{12}$ cm

☐ B. $\frac{16}{3}$ cm

☐ D. 3 cm

10)



Two intersecting lines form vertical angles. One angle is 44° . The vertically opposite angle is a . What is a ?

☐ A. 44°

☐ C. 136°

☐ B. 46°

☐ D. 226°



Colorado CMAS 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 Colorado CMAS practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.SP.6) The law of large numbers states that as the number of trials increases, the experimental probability converges toward the theoretical probability. Both 0.495 and 0.505 are very close to the theoretical 0.5, which is expected with 1000 trials.
- 2) **Choice C is correct.** (7.NS.1-7.NS.3) Because $12 \times 12 = 144$, the square root of 144 is 12.
- 3) **The correct answer is 10.** (7.G.4-7.G.6) From $A = \pi r^2$: $314 = 3.14 \times r^2 \Rightarrow r^2 = 100 \Rightarrow r = 10$ m.
- 4) **Choice A is correct.** (7.EE.1-7.EE.2) Combine like terms: $(-4t + 7t) + (12 - 5) = 3t + 7$.
- 5) **Choice B is correct.** (7.EE.3-7.EE.4) Subtract 2: $4x = 16$. Divide by 4: $x = 4$.
- 6) **Choice C is correct.** (7.SP.1-7.SP.4) Shape (skewness) describes asymmetry, but variability (spread) is measured by range, IQR, or standard deviation. Two distributions can have different shapes but similar spreads, or vice versa.
- 7) **Choice A is correct.** (7.SP.5-7.SP.8) Face cards: 12 (4 suits $\times$ 3 types). $P(\text{face card}) = \frac{12}{52} = \frac{3}{13}$.
- 8) **Choice C is correct.** (7.SP.5-7.SP.8) By the counting principle: $4 \times 6 \times 3 = 72$ complete meal combinations.
- 9) **The correct answer is 10.67.** (7.G.4-7.G.6) $V = \pi r^2 h \Rightarrow 301.44 = 3.14 \times 9 \times h \Rightarrow 301.44 = 28.26h \Rightarrow h \approx 10.67$ inches.
- 10) **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.
- 11) **Choice A is correct.** (7.SP.1-7.SP.4) There are 13 values (odd). Ordered: 72, 75, 78, 78, 81, 83, 85, 86, 89, 90, 92, 94, 97. The 7th value is 85.
- 12) **Choice B is correct.** (7.SP.5-7.SP.8) Every number from 1 to 10 is less than 11, so this event is certain (probability = 1).
- 13) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|7.5 - 8.25|}{8.25} \times 100\% = \frac{0.75}{8.25} \times 100\% \approx 9.1\%$.
- 14) **Choice A is correct.** (7.EE.1-7.EE.2) The student skipped distributing 3 to the 5, a common error.
- 15) **Choice B is correct.** (7.NS.1-7.NS.3) When we subtract a negative number, we are undoing a debt or reversing a loss. This is why $6 - (-3) = 6 + 3 = 9$, which is both positive and larger than the original 6. Choice B directly addresses this conceptual reasoning.
- 16) **The correct answer is 432.** (7.SP.1-7.SP.4) The sample proportion is $\frac{18}{50}$. Use a proportion to estimate the population: $\frac{18}{50} = \frac{x}{1200}$. Cross-multiply: $50x = 21,600$, so $x = 432$ students. This estimate assumes the random sample is representative of all students.
- 17) **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 = $5,000,000 \div 125,000 = 40 \text{ cm}^3$.
- 18) **The correct answer is A,D.** (7.EE.3-7.EE.4) Check each equation with $x = 3$: A: $2(3) - 1 = 5$ ✓. B: $3(3) + 2 = 11 \neq 14$. C: $3 + 6 = 9 \neq 10$. D: $5(3) = 15$ ✓. Correct: A and D only.
- 19) **Choice C is correct.** (7.RP.3) 50% is half; half of 200 is 100.
- 20) **Choice D is correct.** (7.RP.3) Store X: $80 \times 1.60 = \$128$. Store Y: $85 \times 1.50 = \$127.50$. Store Y is cheaper by \$0.50.
- 21) **Choice A is correct.** (7.NS.1b) The additive inverse of -14 is the number that, when added to -14 , gives 0. That number is 14, since $-14 + 14 = 0$.
- 22) **Choice A is correct.** (7.EE.1-7.EE.2) GCF of 20 and 24 is 4. Factor: $20y + 24 = 4(5y + 6)$. Choice B is not completely factored.
- 23) **Choice B is correct.** (7.SP.1-7.SP.4) $252^\circ \div 360^\circ \times 100 = 70\%$.
- 24) **Choice C is correct.** (7.EE.1-7.EE.2) Substitute: $\frac{2(4)-3}{5} = \frac{8-3}{5} = \frac{5}{5} = 1$.
- 25) **Choice A is correct.** (7.EE.1) Combine like terms: $(-2m - 5m) + (3n + n) = -7m + 4n$.
- 26) **Choice A is correct.** (7.EE.4b) "A number plus 8" translates to $x + 8$, and "is less than" translates to $<$.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) For $y = 4x$: when $x = 1$, $y = 4 \times 1 = 4$. So (1, 4) lies on the line. This is the unit-rate point where the constant of proportionality $k = 4$ is visually represented. The other points do not satisfy $y = 4x$.
- 28) **Choice B is correct.** (7.NS.1-7.NS.3) Common denominator is 6: $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$.



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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

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