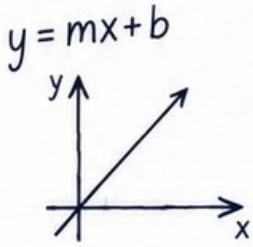
4 Colorado CMAS PRACTICE TESTS

GRADE 7 MATH

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs



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

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

4 PRINTED TESTS

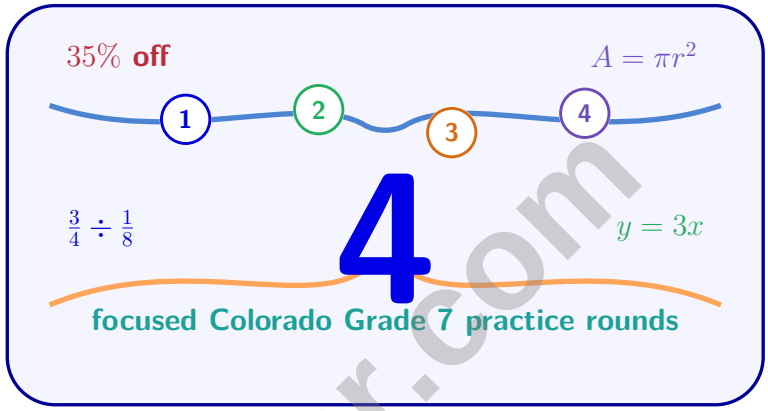
2 ONLINE TESTS

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 Colorado CMAS Grade 7 Math Practice Tests

CMAS Math Review with Complete Keys and Student-Friendly Help



Four 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!

Four focused rounds for sharper CMAS math thinking

This book gives you four 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.

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.

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?

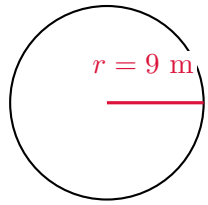
Four CMAS tests, 160 questions, and a focused review path

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.

Table of Contents

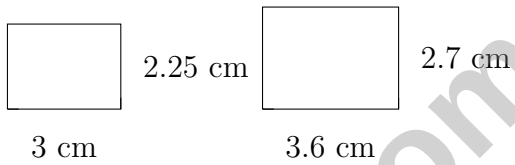
1)



What is the area of this circle? Use $\pi \approx 3.14$.

- ☐ A. 56.52 m^2
- ☐ B. 113.04 m^2
- ☐ C. 254.34 m^2
- ☐ D. 508.68 m^2

2)



The rectangles are similar. What is the scale factor from the first to the second?

- ☐ A. 1.2
- ☐ B. 1.25
- ☐ C. 0.8
- ☐ D. 0.75

3) A circular swimming pool has diameter 15 meters. The owner wants to add a rope around the edge. How much rope is needed? Use $\pi \approx \frac{22}{7}$.

- ☐ A. $\frac{165}{7}$ m
- ☐ B. $\frac{330}{7}$ m
- ☐ C. $\frac{495}{7}$ m
- ☐ D. $\frac{660}{7}$ m

4) Two students' quiz scores over 8 quizzes are: Student P: 85, 87, 86, 88, 85, 87, 86, 89 Student Q: 75, 92, 80, 91, 78, 93, 82, 89 Both have a mean of 87. Which student's performance is more predictable?

- ☐ A. Student P (scores cluster around 87)
- ☐ B. Student Q (wider range shows learning)
- ☐ C. Both are equally predictable
- ☐ D. Student Q (higher high score)

5) A restaurant has 3 appetizers, 5 main courses, and 2 desserts. If a diner chooses one of each, how many complete meals are possible?

☐ A. 10
☐ B. 15
☐ C. 20
☐ D. 30

6) If $a + (-a) = 0$, and $a = 27$, what is the value of $-a$?

7) A diver descends 7.5 meters per minute. What is the total change in depth after 4 minutes?

8) Two box plots compare monthly rainfall (in inches) for Region A and Region B. Region A: IQR (Interquartile Range) = 3 inches; Region B: IQR = 8 inches. What does this comparison reveal?

☐ A. Region A has more variable rainfall
☐ B. Region B has a wider middle 50% of data (more variability in the middle)
☐ C. Both regions have identical rainfall patterns
☐ D. Region A receives more total rain annually

9) A die is rolled and a spinner with 6 equal sections is spun. What is the probability of rolling a number greater than 2 AND spinning a number less than 4?

☐ A. $\frac{1}{3}$
☐ B. $\frac{8}{36}$
☐ C. $\frac{2}{3}$
☐ D. $\frac{4}{9}$

10) A survey asked 180 customers which payment method they prefer:

Method	Credit Card	Debit Card	Cash
Count	85	62	33

What is the experimental probability that a randomly selected customer prefers cash?

☐ A. $\frac{33}{180}$
☐ B. $\frac{33}{62}$
☐ C. $\frac{85}{180}$
☐ D. $\frac{62}{85}$

11) A storage shed floor plan shows a large rectangle (14 ft × 10 ft) with two triangular sections attached to the shorter sides (each triangle has base 10 ft and height 4 ft). What is the total floor area?

☐ A. 100 ft^2
☐ B. 140 ft^2
☐ C. 180 ft^2
☐ D. 220 ft^2

12) A stem-and-leaf plot of student heights (in cm) shows:

Stem	**Leaves**
14	8, 9
15	0, 2, 4, 6, 8
16	1, 3, 5, 7, 9
17	0, 2, 4

What is the mean of the data? (Rounded to nearest whole number)

☐ A. 158
☐ B. 159
☐ C. 160
☐ D. 161

1) In a school, 30% of students play soccer and 25% play basketball. If 5% play both, what is the probability a student plays soccer OR basketball?

☐ A. 0.55
☐ B. 0.50
☐ C. 0.40
☐ D. 0.35

2) A figure undergoes two successive reflections: first over the y-axis, then over the x-axis. A point at $(3, 4)$ is transformed. What is the final position?

☐ A. $(3, 4)$
☐ B. $(-3, -4)$
☐ C. $(-3, 4)$
☐ D. $(3, -4)$

3) What is $-\frac{2}{5} \times (-10)$?

☐ A. -4
☐ B. -20
☐ C. 4
☐ D. 20

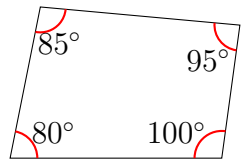
4) A smoothie recipe uses ingredients in this ratio:

Berries (cups)	1	2.5	x
Yogurt (cups)	0.5	y	4

What is $x + y$?

☐ A. 10
☐ B. 11
☐ C. 8
☐ D. 9.25

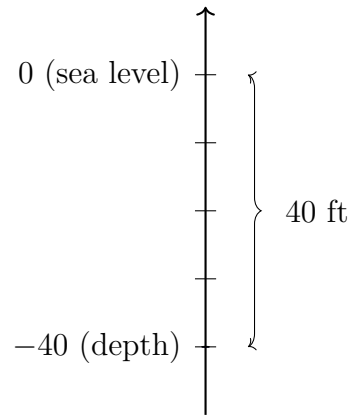
5)



Which statement is true about the angle measures shown?

☐ A. Their sum is 180°.
☐ B. Their sum is 360°.
☐ C. They are all equal.
☐ D. They cannot make a quadrilateral.

6) A scuba diver descends 40 feet below sea level. Which integer represents this depth?



☐ A. 40 (ignores direction/below sea level)
☐ B. −80 (double the depth)
☐ C. 0 (at sea level, not below)
☐ D. −40 (correct; below is negative)

7) Which of the following is NOT a like term with $6xy$?

☐ A. $-4xy$
☐ B. $9yx$
☐ C. $2xy^2$
☐ D. $10xy$

8) Identify the correct factorization of $-9m - 12$:

☐ A. $-3(3m + 4)$
☐ B. $3(-3m - 4)$
☐ C. $-3(3m - 4)$
☐ D. $9(-m - 1.33)$

9) Solve: $0.5x + 2 < 7$

☐ A. $x < 10$
☐ B. $x > 10$
☐ C. $x < 18$
☐ D. $x < 4.5$

1) A sports equipment company surveys 500 customers about their new racket design. The company wants to ensure the sample represents both amateur and professional players. Which sampling method best achieves this?

☐ A. Random selection of all customers
☐ B. Stratified sampling with separate groups for amateurs and professionals
☐ C. Selecting every 10th customer from an online list
☐ D. Asking volunteers at a professional tennis tournament

2) A dot plot shows the distance (in kilometers) traveled by two cycling groups in one afternoon. Group 1: 10, 12, 12, 13, 13, 14 km; Group 2: 5, 8, 15, 18, 22, 25 km. Which group had a more predictable cycling distance?

☐ A. Group 1 (range 4 km, clustered 12–13)
☐ B. Group 2 (wider range, more adventure)
☐ C. Both groups have the same predictability
☐ D. Group 2 (higher average distance)

3) A rectangular piece of fabric (25 inches × 16 inches) has two identical right triangles (5 inches × 4 inches) removed from opposite corners. What is the remaining area?

☐ A. 360 in^2
☐ B. 380 in^2
☐ C. 400 in^2
☐ D. 420 in^2

4) A cube has side length 5 inches. What is its volume?

☐ A. 125 in^3
☐ B. 75 in^3
☐ C. 25 in^3
☐ D. 15 in^3

5) A recipe calls for $3\frac{1}{2}$ cups of water. If you make $\frac{2}{3}$ of the recipe, how much water do you need? Express your answer as a mixed number.

6) How many unique triangles can be constructed with sides of length 6 cm, 8 cm, and 10 cm?

☐ A. 0
☐ B. 1
☐ C. 2
☐ D. More than 2

7) Circle X has a radius of 6 cm. Circle Y has a diameter of 6 cm. Which circle has the larger radius?

☐ A. Circle X
☐ B. Circle Y
☐ C. They have equal radii
☐ D. Cannot be determined

8) A baker's original recipe calls for $\frac{2}{3}$ cup of honey. First, she makes $\frac{3}{2}$ times the recipe. Then she uses $\frac{1}{4}$ of the total honey made for granola bars. How much honey (in cups) remains for the other desserts?

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.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice C is correct.** 7.G.4-7.G.6 $A = 3.14 \times 9^2 = 3.14 \times 81 = 254.34$ m^2.
2) **Choice A is correct.** 7.G.1-7.G.5 Scale factor $= \frac{3.6}{3} = 1.2$. Verify: $2.25 \times 1.2 = 2.7$ ✓
3) **Choice B is correct.** 7.G.4-7.G.6 $C = \pi d = \frac{22}{7} \times 15 = \frac{330}{7}$ m.
4) **Choice A is correct.** 7.SP.1-7.SP.4 Student P: 85–89 (range = 4, MAD is small). Student Q: 75–93 (range = 18). Student P's scores cluster consistently; Student Q varies wildly despite the same mean.
5) **Choice D is correct.** 7.SP.5-7.SP.8 By the counting principle: $3 \times 5 \times 2 = 30$ complete meals.
6) **The correct answer is** -27 **.** 7.NS.1-7.NS.3 Since $a = 27$, the opposite (additive inverse) is $-a = -27$. We can verify: $27 + (-27) = 0$.
7) **The correct answer is** -30 **.** 7.NS.2 Change per minute is -7.5 meters. After 4 minutes: $(-7.5) \times 4 = -30$ meters.
8) **Choice B is correct.** 7.SP.3 The IQR (from Q1 to Q3) represents the spread of the middle 50% of data. A larger IQR (8 vs. 3) indicates more variability in the central portion of the distribution.
9) **Choice A is correct.** 7.SP.5-7.SP.8 Greater than 2 on die: 3, 4, 5, 6 = 4 out of 6, so $P = \frac{2}{3}$. Less than 4 on spinner: 1, 2, 3 = 3 out of 6, so $P = \frac{1}{2}$. Product: $\frac{2}{3} \cdot \frac{1}{2} = \frac{1}{3}$ (or $\frac{12}{36}$).
10) **Choice A is correct.** 7.SP.6 The relative frequency of cash preference is $\frac{\text{cash count}}{\text{total surveyed}} = \frac{33}{180} \approx 0.183$.
11) **Choice C is correct.** 7.G.4-7.G.6 Decompose into a central rectangle and two triangles on opposite sides. Rectangle: $14 \times 10 = 140$ ft^2. Two triangles: $2 \times \left(\frac{1}{2} \times 10 \times 4\right) = 40$ ft^2. Total: $140 + 40 = 180$ ft^2.
12) **Choice B is correct.** 7.SP.1-7.SP.4 Sum: $148 + 149 + 150 + 152 + 154 + 156 + 158 + 161 + 163 + 165 + 167 + 169 + 170 + 172 + 174 = 2388$. Mean $= 2388/15 = 159.2 \approx 159$.
13) **Choice B is correct.** 7.G.4-7.G.6 Volume $= l \times w \times h = 5 \times 4 \times 8 = 160$ m^3.
14) **Choice D is correct.** 7.G.1-7.G.5 With two known angles, the third angle is $180° - 38° - 67° = 75°$ (fixed). However, varying the side opposite any angle creates infinitely many similar but non-congruent triangles.
15) **Choice A is correct.** 7.G.4-7.G.6 The radius is any segment from the center to the circle. OP is labeled and is a radius.
16) **Choice B is correct.** 7.SP.5-7.SP.8 A = 0.5, B = 0.6, C = 0.55. Event B has the highest probability ($0.6 > 0.55 > 0.5$).
17) **Choice B is correct.** 7.SP.1-7.SP.4 Sample A: $\frac{12}{80} = 0.15$ or 15%; Sample B: $\frac{15}{75} = 0.20$ or 20%; Sample C: $\frac{18}{120} = 0.15$ or 15%. Sample B is highest.
18) **Choice D is correct.** 7.RP.3 20% of 250 is $0.20 \times 250 = 50$ new employees.
19) **Choice D is correct.** 7.RP.3 Tax $= 0.06 \times 18 = \$1.08$. Total $= 18 + 1.08 = \$19.08$.
20) **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.
21) **Choice D is correct.** 7.NS.1-7.NS.3 Subtracting a negative is the same as adding its opposite: $4 - (-7) = 4 + 7 = 11$.
22) **The correct answer is** $\sqrt{34}$ **.** 7.G.1-7.G.5 Diagonal $= \sqrt{5^2 + 3^2} = \sqrt{25 + 9} = \sqrt{34}$ m.
23) **The correct answer is** $(-6, 3)$ **.** 7.G.1-7.G.5 A 180° rotation about the origin uses the rule $(a, b) \to (-a, -b)$. If the image is $(6, -3)$, then $(-a, -b) = (6, -3)$, so $a = -6$ and $b = 3$. Thus the original point is $(a, b) = (-6, 3)$.
24) **Choice B is correct.** 7.SP.1-7.SP.4 8% of $50,000 = 0.08 \times 50,000 = 4000$ users.
25) **Choice C is correct.** 7.RP.1-7.RP.3 Unit rate is $\$120 \div 10 = \$12$ per book. For 15 books: $15 \times \$12 = \$180$.
26) **Choice D is correct.** 7.RP.1-7.RP.3 Truck: $\frac{1\frac{1}{4}}{1/3} = \frac{5/4}{1/3} = \frac{5}{4} \times 3 = \frac{15}{4}$ tons/hr. Train: $\frac{2\frac{1}{2}}{2/3} = \frac{5/2}{2/3} = \frac{5}{2} \times \frac{3}{2} = \frac{15}{4}$ tons/hr. Same rate.
27) **Choice D is correct.** 7.RP.1-7.RP.3 From $y = kx$: $6 = k(2)$, so $k = \frac{6}{2} = 3$.
28) **Choice D is correct.** 7.RP.1-7.RP.3 Cost equals price per item times number of items. Here $T = 0.50n$.
29) **Choice C is correct.** 7.RP.3 Returns: $\frac{1}{10} \times 500 = 50$. Kept: $500 - 50 = 450$. Note: $\frac{1}{10} = 0.1 = 10\%$.

Hi, Brave Learner!

◇ No one gets stronger by only doing easy problems. The questions that slowed you down were part of the training. 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:** Mistakes are not proof that you cannot do math. They are directions. They show what to review, what to ask about, and what to practice next. ⋆

How to Use Mistakes

- **Name It:** Was it reading, setup, arithmetic, or checking?
- **Fix It:** Correct the work while the question is fresh.
- **Repeat It:** Try one similar problem soon.
- **Remember It:** Write the lesson in your own words.

Grade 7 test-day tip: Treat every corrected error as a point you are preparing to earn next time.

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

Jay Daie
Your Brave-Learning Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 4 full-length Math practice tests and 2 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:

- 4 Full-Length Printed Tests
- 2 Online Practice Tests
- Detailed Answers & 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

Build Confidence
Practice regularly to feel prepared and test-ready.

Strengthen Math Skills
Develop key math concepts and problem solving abilities.

Improve Understanding
Learn with clear explanations and step-by-step solutions.

Test Confidence
Familiarize with test formats and improve accuracy and speed.

Boost Performance
Apply your knowledge and achieve your best score!

TOPICS COVERED

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

2 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!

Don't lose it—your extra practice and success start here!

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FOR MORE PRACTICE TESTS AND LEARNING RESOURCES.

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY