

10 Colorado CMAS

GRADE
8
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

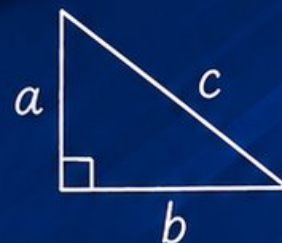
10 PRINTED
TESTS



2 ONLINE
TESTS



- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work



$$y = mx + b$$



$$3x - 7 = 2(x + 5)$$
$$x = 17$$

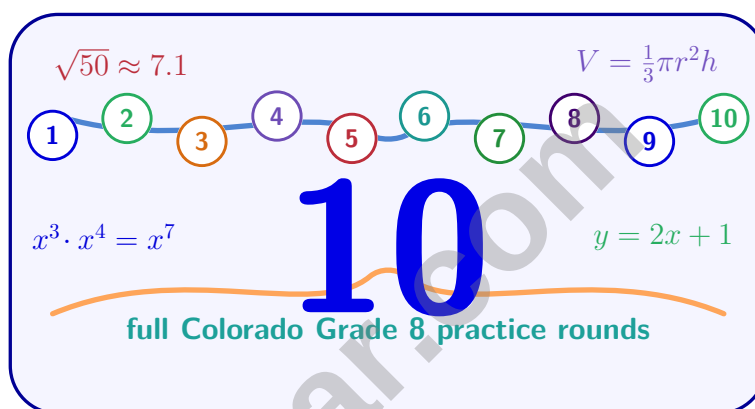


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Colorado CMAS Grade 8 Math Practice Tests

Colorado Grade 8 CMAS Practice for mountain-strong review for linear reasoning, equations, transformations, data, and probability



Ten complete 40-question Grade 8 CMAS practice rounds with linear relationships, scientific notation, real numbers, equations, functions, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



Copyright ©

Testinar Inc



Published by Testinar Inc

Testinar.com

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the author, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law, including Section 107 or 108 of the 1976 United States Copyright Act.

This publication is independently produced and has no official connection to any state, district, or national testing program.

Test names and organizational names used herein are the property of their respective trademark holders.



Copyright ©

Welcome, Colorado Grade 8 Problem Solver!

Ten focused rounds for sharper Colorado CMAS math thinking

This book gives you ten full Grade 8 CMAS math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **Multiplying Linear Expressions and Factoring** (8.EE.C.7): Solve linear equations in one variable. A second useful connection is **Similarity and Dilations** (8.G.A.4): Understand that a two-dimensional figure is similar to another if the second can be obtained by a sequence of rotations, reflections, translations, and dilations.

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 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 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.

Grade 8 standards focus: Keep the routine connected to **Surface Area of Prisms, Cylinders, and Pyramids** (8.G.C.9): State the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. It also prepares you for **Volume of Cylinders, Cones, and Spheres** (8.G.C.9): Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

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	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, 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 8 success means recognizing which idea is being tested even when the next question changes format.

Grade 8 standards focus: Use these habits while practicing **Interior Angles of Polygons** (8.G.A.5): Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and.... Another recurring target is **Personal Financial Literacy** (8.G.B.7): Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

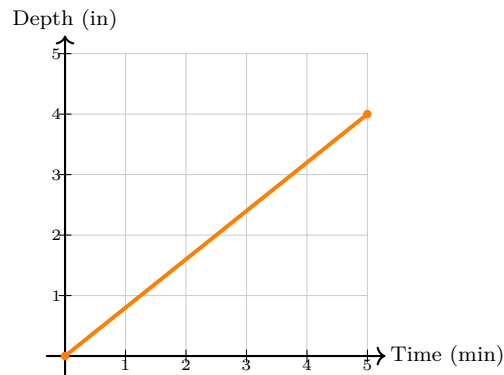


Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	_____	15
★ Practice Test 2	_____	34
★ Practice Test 3	_____	50
★ Practice Test 4	_____	67
★ Practice Test 5	_____	83
★ Practice Test 6	_____	99
★ Practice Test 7	_____	114
★ Practice Test 8	_____	131
★ Practice Test 9	_____	148
★ Practice Test 10	_____	164
Practice Test Answer Keys	_____	179
Practice Test Answers and Explanations	_____	185

- 1) A graph shows depth of water versus time as a pool is filled.



What is the filling rate (slope)?

- ☐ A. $\frac{4}{5}$ inches per minute ☐ C. 4 inches per minute
☐ B. $\frac{5}{4}$ inches per minute ☐ D. 5 inches per minute

- 2) If $3^a \cdot 3^5 = 3^{12}$, what is the value of a ?

- 3) A cube-shaped storage container has a volume of 512 cubic feet. What is the side length of the cube?



Scan me!
For more practice
& answers

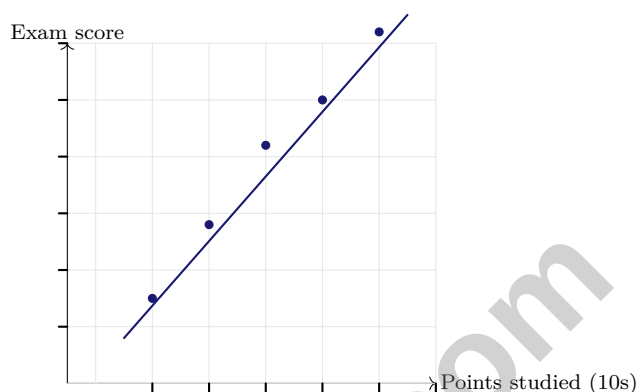
- 4) A cylinder has radius 1.5 inches and height 8 inches. What is the surface area? (Use $\pi \approx 3.14$.)

☐ A. 28.3 in^2

☐ C. 75.4 in^2

☐ B. 47.1 in^2

☐ D. 89.5 in^2



5)

A model predicts exam score: $S = 8p - 8$, where p is the number of 10-point topic sets studied. The model gives $S = 32$ at $p = 5$, but the actual score was 35. What is the residual?

☐ A. -3

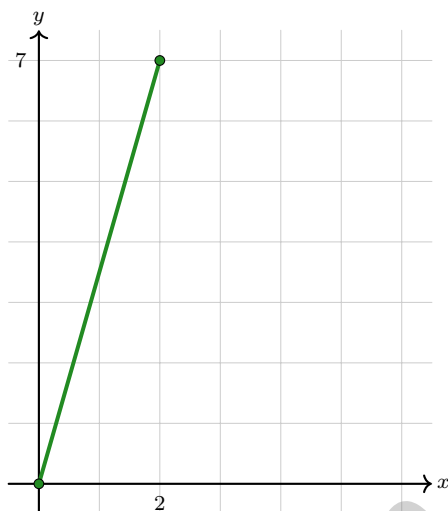
☐ C. 35

☐ B. 3

☐ D. 67



6)



The constant of proportionality is:

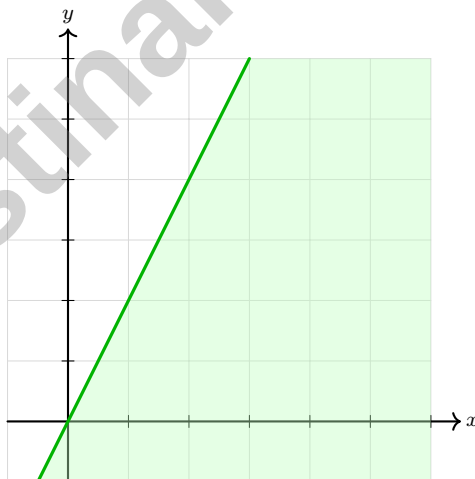
☐ A. $\frac{2}{7}$

☐ B. 7

☐ C. 2

☐ D. $\frac{7}{2}$

7)



The graph shows which inequality?

☐ A. $y > 2x$

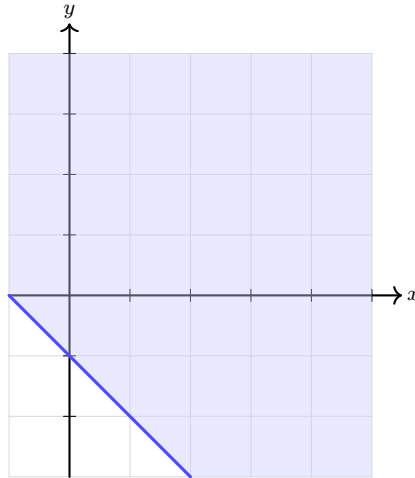
☐ B. $y < 2x$

☐ C. $y \geq 2x$

☐ D. $y \leq 2x$



Scan me!
For more practice
& answers



1)

The line shown has equation $y = -x - 1$. With shading above, the inequality is:

☐ A. $y > -x - 1$

☐ C. $y \geq -x - 1$

☐ B. $y < -x - 1$

☐ D. $y \leq -x - 1$

- 2) Two hikers start from the same point, walking in opposite directions. One walks at 4 mph, the other at 5 mph. After how many hours are they 27 miles apart?

- 3) A data set has a linear relationship modeled by the line $y = 0.5x + 10$. Which point lies exactly on the trend line?

☐ A. (2, 10)

☐ C. (6, 12)

☐ B. (8, 15)

☐ D. (4, 12)



Scan me!
For more practice
& answers

4) Triangle with vertices at $(1, 0)$, $(3, 0)$, and $(2, 2)$ is dilated by a scale factor of 0.5 from the origin. What is the area ratio of the new triangle to the original?

☐ A. 0.5

☐ C. 2

☐ B. 0.25

☐ D. 4

5) If $f(x) = -3x + 10$, what is $f(2)$?

☐ A. 4

☐ C. -6
☐ B. 16

☐ D. 6

Decimal Classification	
Terminating	Repeating
0.25	0.33
0.5	0.142857

6)

Both categories shown contain rational numbers. Which is irrational?

☐ A. 0.1234567 (terminating)

☐ C. $\frac{22}{7}$
☐ B. $0.999\ldots$ (repeating 9's)

☐ D. $0.3030030003\ldots$ (non-repeating)

7) Which number is irrational?

☐ A. $\frac{7}{2}$
☐ C. 0.25

☐ B. 3

☐ D. $\sqrt{5}$

8) A phone company charges \$25 per month plus \$0.10 per text message. What is the total monthly cost for 100 texts?



1) Solve by elimination:
$$\begin{cases} 4x + 3y = 18 \\ 2x - 3y = 6 \end{cases}$$

☐ A. (2, 2)

☐ C. (4, 2/3)

☐ B. (3, 2)

☐ D. (4, 1)

2) Factor $4x + 12$ completely.

☐ A. $4(x + 3)$

☐ C. $12(x + 1)$

☐ B. $2(2x + 6)$

☐ D. $x + 12$

3) A pizza restaurant charges \$12 for a large pizza and \$1.50 per topping. Is the total cost a function of the number of toppings?

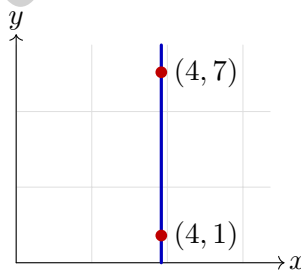
☐ A. No, because the base price is fixed.

☐ D. Yes, only if the customer is satisfied with the pizza.

☐ B. No, because toppings are not free.

☐ C. Yes, each number of toppings gives exactly one total cost.

4) A graph shows a line with an undefined slope passing through (4, 1) and (4, 7). Which description fits?



☐ A. The line is horizontal

☐ C. The line has zero slope

☐ B. The line is slanted at 45°

☐ D. The line is vertical



5) For the table $(0, 10)$, $(2, 14)$, $(4, 18)$, $(6, 22)$, what is the slope?

x	0	2	4	6
y	10	14	18	22

6) A coffee shop has fixed costs of \$400 per day and variable costs of \$2 per cup sold. If cups sell for \$5 each, about how many cups must be sold to break even?

☐ A. 100 cups

☐ C. 134 cups

☐ B. 120 cups

☐ D. 160 cups

7) A line passes through the points $(2, 5)$ and $(6, 17)$. Find the slope of the line.

8) Which function shows a constant rate of change (linear)?

☐ A. The height of a bouncing ball over time

☐ C. The population of a growing organism (exponential)

☐ B. The cost of items at a fixed price per unit

☐ D. The temperature of cooling coffee (exponential decay)



Scan me!
For more practice
& answers

Colorado CMAS 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 Colorado CMAS practice test.



Scan me!
For more practice
& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (8.EE.B.5) From (0, 0) to (5, 4): slope = $\frac{4-0}{5-0} = \frac{4}{5}$ inches per minute.
- 2) **The correct answer is 7.** (8.EE.A.1) Using the product rule, $a + 5 = 12$, so $a = 7$. Verification: $3^7 \cdot 3^5 = 3^{12}$.
- 3) **The correct answer is 8.** (8.EE.A.2) $e^3 = 512$, so $e = \sqrt[3]{512} = 8$ feet.
- 4) **Choice D is correct.** (8.G.C.9) $SA = 2\pi r^2 + 2\pi rh = 2(3.14)(1.5)^2 + 2(3.14)(1.5)(8) = 14.13 + 75.36 = 89.49 \approx 89.5$ in².
- 5) **Choice B is correct.** (8.SP.A.3) Residual = actual – predicted = $35 - 32 = 3$. The model underestimated by 3 points.
- 6) **Choice D is correct.** (8.EE.B.5) $k = \frac{y}{x} = \frac{7}{2} = 3.5$. The line passes through (0, 0) and (2, 7).
- 7) **Choice D is correct.** (8.G.B.8) SOLID line (includes boundary) and shading BELOW the line indicates $y \leq 2x$.
- 8) **Choice D is correct.** (8.F.A.2) First line starts at (0, 1) (higher). If slopes are close, first stays above. If second has much steeper slope, it can overtake first in Q1. Answer depends on specific slopes.
- 9) **The correct answer is 6.** (8.EE.C.7) Add 5 and divide by 2: $x \geq 6$. The boundary value is 6.
- 10) **Choice C is correct.** (8.F.A.3) $y = \frac{1}{2}x$ is in the form $y = mx + b$ with $m = \frac{1}{2}$ and $b = 0$. The others are incorrectly classified.
- 11) **Choice A is correct.** (8.F.B.4) y -intercept is 2 (at $x = 0$). Slope is $\frac{6-2}{4-0} = \frac{4}{4} = 1$.
- 12) **Choice A is correct.** (8.F.B.5) The graph shows a spike from 0 to 5 mg in 1 hour, then a gradual decrease from 5 to 2 mg over 3 hours. The steepest positive slope is in the first hour.
- 13) **Choice B is correct.** (8.G.A.2) Since the hexagons are congruent, all corresponding angles are equal. Hexagon GHIJKL has the same angles as ABCDEF: $120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ$. (Note: The interior angle sum of any hexagon is always 720° , so option C is incorrect.)
- 14) **Choice A is correct.** (8.G.A.3) The points $(0, 2) \rightarrow (0, -2)$ and $(2, 4) \rightarrow (2, -4)$. This is the reflection rule $(x, y) \rightarrow (x, -y)$.
- 15) **Choice A is correct.** (8.G.A.5) Sum of angles in a triangle is 180° . Solve: $180 - 55 - 68 = 57^\circ$.
- 16) **Choice A is correct.** (8.G.B.6, 8.G.B.7) Using $(\sqrt{8})^2 + (\sqrt{8})^2 = c^2$ gives $8 + 8 = 16$, so $c = \sqrt{16} = 4$.
- 17) **Choice C is correct.** (8.G.B.8) $d = \sqrt{(13-1)^2 + (6-1)^2} = \sqrt{12^2 + 5^2} = \sqrt{144 + 25} = \sqrt{169} = 13$. (This is a 5-12-13 Pythagorean triple.)
- 18) **The correct answer is B, E.** (8.G.B.7) There are 10 marbles total. B is true because $P(\text{blue}) = \frac{3}{10}$. E is true because $P(\text{red or blue}) = \frac{5+3}{10} = \frac{8}{10} = \frac{4}{5}$. A is false because $P(\text{red}) = \frac{1}{2}$. C is false because $P(\text{green}) = \frac{1}{5}$. D is false because $P(\text{yellow}) = 0$.
- 19) **Choice B is correct.** (8.G.C.9) The radius is half the diameter: $r = 8 \div 2 = 4$ in. Cylinder volume: $V = \pi r^2 h = 3.14 \times 4^2 \times 15$.
- 20) **Choice C is correct.** (8.G.B.7) Alternate interior angles are congruent when a transversal cuts parallel lines. So $w = 95^\circ$.
- 21) **Choice A is correct.** (8.G.B.7) $V = \frac{1}{3} \times 25 \times 9 = 75$ cm³.
- 22) **Choice C is correct.** (8.G.B.7) Trapezoid area = $\frac{1}{2}(6 + 10) \times 5 = 40$ cm². Rectangle area = $10 \times 3 = 30$ cm². Total = $40 + 30 = 70$ cm².
- 23) **Choice B is correct.** (8.G.A.5) Sum of angles in a pentagon is 540° . Sum of known: $80 + 105 + 125 + 115 = 425^\circ$. Fifth angle: $540 - 425 = 115^\circ$.
- 24) **Choice D is correct.** (8.SP.A.4) Marginal relative frequency for takeout: $\frac{325}{500} = 0.65$.
- 25) **Choice D is correct.** (8.EE.A.4) Divide coefficients: $1.8 \div 9 = 0.2 = 2 \times 10^{-1}$. Subtract exponents: $10^{-2} - (-8) = 10^6$. Combine: $2 \times 10^{-1} \times 10^6 = 2 \times 10^5$.
- 26) **Choice A is correct.** (8.EE.C) The graph shows the lines $y = \frac{3}{5}x + 1$ (blue) and $y = -x + 5$ (red) intersecting at (2.5, 2.5).



Scan me!
For more practice
& answers

Hi, Confident Learner!

◇ This full-length book gave you ten complete Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 8 math can feel big because it connects real numbers and exponents with linear equations, systems, functions, transformations, geometry, and data. ◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 8 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 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 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.



Master Key Skills

Develop strong math skills and problem solving abilities.



Improve Understanding

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



Test Strategies

Learn proven strategies to approach every question with confidence.



Boost Performance

Apply your knowledge and achieve your best score!

TOPICS COVERED

- | | |
|---------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Data Analysis |
| ✓ Inequalities | ✓ Measurement |
| ✓ Functions | ✓ Pythagorean Theorem |
| ✓ Geometry | ✓ Surface Area & Volume |
| ✓ Ratios & Proportions | ✓ 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!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY