

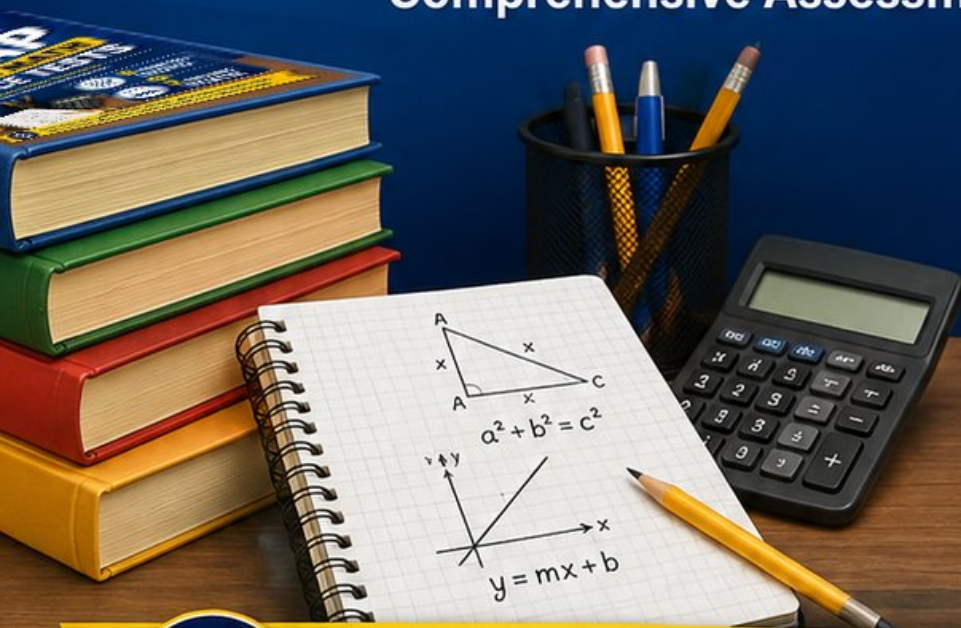
6

Nebraska

NSCAS Growth

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS

+



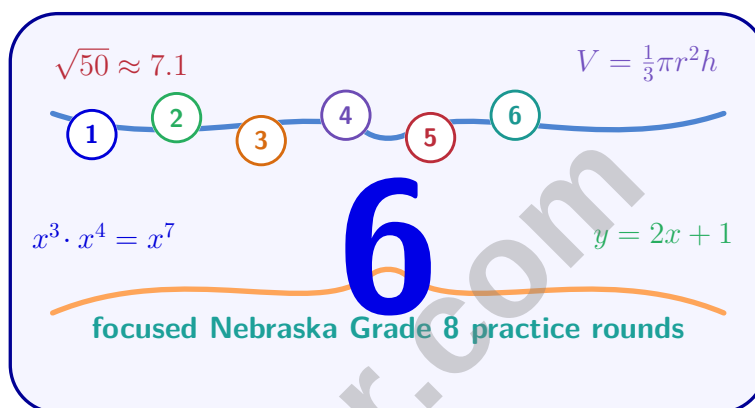
2 ONLINE
TESTS



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

6 Nebraska NSCAS Growth Grade 8 Math Practice Tests

Six Grade 8 Math Rounds with Standards Review and Full Answer Support



Six complete 40-question Grade 8 NSCAS Growth practice rounds with real numbers, exponents, scientific notation, equations, functions, transformations, 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, Nebraska Grade 8 Problem Solver!

Six focused rounds for sharper NSCAS Growth math thinking

This book gives you six full Grade 8 NSCAS Growth math practice tests. Each round is built to help you recognize structure, reason with real numbers and exponents, analyze linear relationships, connect equations with graphs, and explain your thinking with care.

Your Nebraska 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 six-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 an exponent rule, equation, graph, transformation, diagram, 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.

Nebraska 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?

Six NSCAS Growth tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
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.



Scan me!
For more practice
& answers

Table of Contents

★ Practice Test 1	_____	13
★ Practice Test 2	_____	28
★ Practice Test 3	_____	44
★ Practice Test 4	_____	60
★ Practice Test 5	_____	76
★ Practice Test 6	_____	92
Practice Test Answer Keys	_____	108
Practice Test Answers and Explanations	_____	112

1) Interest earned: Account X : $I(m) = 0.8m$ (monthly interest in dollars). Account Y at month 0: \$0, month 12: \$10. Which earns more annually (12 months)?

- ☐ A. Account X ☐ C. Both earn equal
☐ B. Account Y ☐ D. Cannot be determined

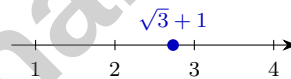
2) Which of the following best describes $0.9\overline{9}$?

- ☐ A. Irrational ☐ C. Equal to 1, rational
☐ B. Between 0 and 1, rational ☐ D. Greater than 1, irrational

3) A square has an area of 75 square units. Between which two integers is the side length?

- ☐ A. Between 7 and 8 ☐ C. Between 6 and 7
☐ B. Between 5 and 6 ☐ D. Between 8 and 9

4) On a number line, where would $\sqrt{3} + 1$ fall?



- ☐ A. Between 1 and 2 ☐ C. Between 3 and 4
☐ B. Greater than 4 ☐ D. Between 2 and 3

5) A bank loan of \$10,000 at 5% simple interest is repaid in 5 equal annual installments. The total simple interest over the full term is \$2,500. How much principal and interest remains owed after making the first \$2,500 payment?

- ☐ A. \$8,000 ☐ C. \$10,000
☐ B. \$8,500 ☐ D. \$9,500



Scan me!
For more practice
& answers

6) Simplify $\frac{a^4b^3}{a^2b}$.

☐ A. a^2b^{-2}

☐ B. a^2b^3

☐ C. $\frac{a^6b^4}{a^2b^2}$

☐ D. $\frac{1}{1}$ or a^2b^2

7) A rectangular garden has an area of 200 square meters. If it is a square, what is the approximate side length?

☐ A. 13 meters

☐ B. 16.2 meters

☐ C. 15 meters

☐ D. 14.1 meters

8) How many times greater is 6×10^8 than 3×10^6 ?

☐ A. 2 times

☐ B. 20 times

☐ C. 200 times

☐ D. 2,000 times

9) Which expression is NOT in proper scientific notation?

Proper range for coefficient:



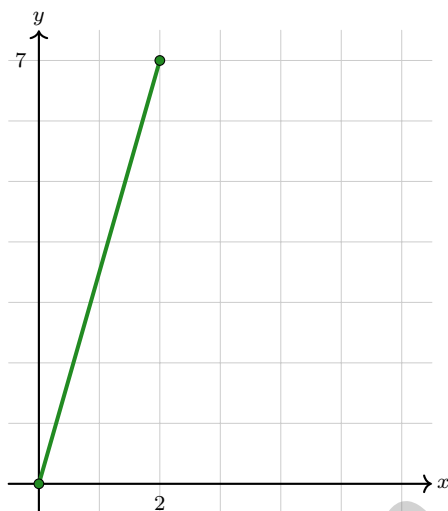
☐ A. 9.5×10^{-3}

☐ B. 10.2×10^4

☐ C. 1×10^6

☐ D. 5.67×10^0





10)

The constant of proportionality is:

☐ A. $\frac{2}{7}$

☐ B. 7

☐ C. 2

☐ D. $\frac{7}{2}$

11) Which ordered pair satisfies both equations?

- $2x - y = 5$

- $x + 2y = 5$

☐ A. (3, 1)

☐ B. (2, 0)

☐ C. (1, -3)

☐ D. (4, 3)

12) Multiply: $(x + 2)(x + 6)$.

☐ A. $x^2 + 8x + 12$

☐ B. $x^2 + 12$

☐ C. $x^2 + 6x + 8$

☐ D. $x^2 + 2x + 6$



Scan me!
For more practice
& answers

1) What is the solution to $6(x + 2) = 30$?

☐ A. $x = 3$

☐ C. $x = 8$

☐ B. $x = 5$

☐ D. $x = -2$

2) Triangle A has sides 5, 12, 13. Triangle B has sides 7.5, 18, 19.5. Triangle C has sides 10, 24, 26. Which triangles are similar to Triangle A ?

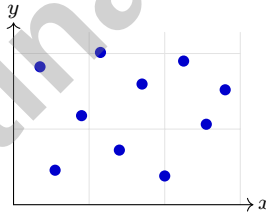
☐ A. Only Triangle B

☐ C. Both Triangle B and C

☐ B. Only Triangle C

☐ D. Neither Triangle B nor C

3) Two cities are located at $(1, 3)$ and $(7, 11)$ on a map. If each unit represents 2 miles, what is the distance between the cities in miles?



4)

A scatter plot of store location distance from downtown (miles) versus average customer income (thousands) shows no clear pattern. The points are scattered randomly. This indicates:

☐ A. No correlation between location and customer income

☐ C. Strong negative correlation

☐ D. Distance determines income

☐ B. Strong positive correlation



- 5) From the table below, which statement correctly compares completion rates between employee types?

	Completed	Incomplete	Total
Salaried	96	24	120
Hourly	56	24	80
Total	152	48	200

- ☐ A. Salaried: $\frac{96}{152}$; Hourly: $\frac{56}{152}$ (both use column total).
☐ B. Salaried: $\frac{96}{120} = 0.80$; Hourly: $\frac{56}{80} = 0.70$.
☐ C. Salaried: $\frac{96}{200} = 0.48$; Hourly: $\frac{56}{200} = 0.28$.
☐ D. Salaried: $\frac{96}{120} = 0.80$; Hourly: $\frac{56}{152} \approx 0.37$.

- 6) If you add an outlier to a data set, how will it usually affect the MAD?

- ☐ A. The MAD will become zero
☐ B. The MAD will stay the same
☐ C. The MAD will decrease
☐ D. The MAD will increase

7)

	1	2	3
Red	R1	R2	R3
Blue	B1	B2	B3

The table above shows all possible outcomes when selecting a color and a number. How many total outcomes are there?

- ☐ A. 5
☐ B. 6
☐ C. 8
☐ D. 9



Scan me!
For more practice
& answers

1) Which ordered pair, if added to $\{(1, 2), (2, 4), (3, 6)\}$, would make it NOT a function?

☐ A. (4, 8)

☐ C. (2, 4)

☐ B. (3, 8)

☐ D. (5, 10)

2) 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)

3) A right triangle has legs of $\sqrt{12}$ and $\sqrt{13}$. What is the hypotenuse in simplified radical form?

☐ A. $\sqrt{20}$

☐ C. $\sqrt{5}$

☐ B. 5

☐ D. 25

4) What is the sum of the interior angles of a triangle?

☐ A. 180°

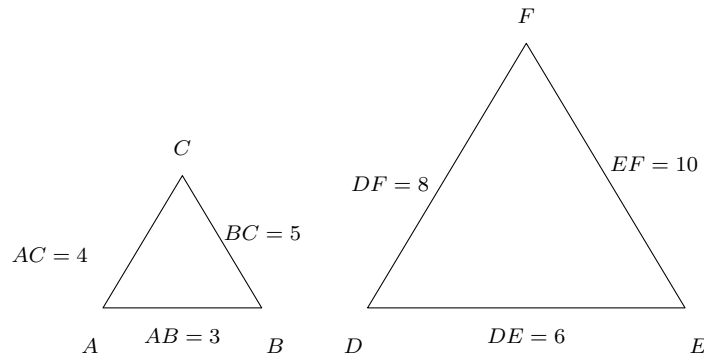
☐ C. 270°

☐ B. 90°

☐ D. 360°



- 5) Two triangles are shown below. Triangle ABC has sides 3, 4, 5. Triangle DEF has sides 6, 8, 10. Are these triangles similar?



- ☐ A. No, because the sides are different lengths
- ☐ B. Yes, each side of DEF is twice the corresponding side of ABC
- ☐ C. No, the angles are not equal
- ☐ D. Cannot be determined
- 6) For the inequality $x + 3y \leq 9$, compute the left side at the origin $(0, 0)$.

- 7) Three angles are formed on a straight line. Their measures are x , $2x$, and $3x$. Find x .
- ☐ A. 30°
- ☐ B. 45°
- ☐ C. 60°
- ☐ D. 90°



Scan me!
For more practice
& answers

Nebraska NSCAS Growth 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 Nebraska NSCAS Growth practice test.

Testinar.com



Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (8.D.2) $I_X(12) = 0.8(12) = 9.60$ dollars. Slope of Y : $(10 - 0)/12 \approx 0.833$ per month, so $I_Y(12) = 10$ dollars. Since $10 > 9.60$, Account Y earns more.
- 2) **Choice C is correct.** (8.N.1) $0.9\overline{9} = 0.999\dots = 1$. This repeating decimal is rational and equals exactly 1. (Algebraically, if $x = 0.999\dots$, then $10x = 9.999\dots$, so $10x - x = 9$, giving $x = 1$.)
- 3) **Choice D is correct.** (8.N.1) The side length is $\sqrt{75}$. Since $8^2 = 64$ and $9^2 = 81$, and $64 < 75 < 81$, we have $8 < \sqrt{75} < 9$.
- 4) **Choice D is correct.** (8.N.1) $\sqrt{3} \approx 1.73$, so $\sqrt{3} + 1 \approx 2.73$, which falls between 2 and 3. Distractors A, C, and D represent underestimation, overestimation, and far overestimation of $\sqrt{3}$.
- 5) **Choice C is correct.** (8.D.3) Total amount to repay: \$10,000 (principal) + \$2,500 (interest) = \$12,500. Five equal annual payments: $\$12,500 / 5 = \$2,500$ per payment. After first payment of \$2,500, remaining owed is $\$12,500 - \$2,500 = \$10,000$.
- 6) **Choice D is correct.** (8.N.2) Quotient rule for each variable: $\frac{a^4}{a^2} = a^2$ and $\frac{b^3}{b} = b^2$. Result: a^2b^2 .
- 7) **Choice D is correct.** (8.G.2) $s = \sqrt{200} = \sqrt{100 \times 2} = 10\sqrt{2} \approx 14.14$ meters.
- 8) **Choice C is correct.** (8.N.2) Divide: $\frac{6 \times 10^8}{3 \times 10^6} = \frac{6}{3} \times 10^{8-6} = 2 \times 10^2 = 200$.
- 9) **Choice B is correct.** (8.D.2) Scientific notation requires the coefficient to be in the range $[1, 10)$. In choice B, $10.2 \geq 10$, so it is not in standard form. It should be 1.02×10^5 .
- 10) **Choice D is correct.** (8.G.1) $k = \frac{y}{x} = \frac{7}{2} = 3.5$. The line passes through $(0, 0)$ and $(2, 7)$.
- 11) **Choice A is correct.** (8.G.1) Check $(3, 1)$: $2(3) - 1 = 5$ ✓ and $3 + 2(1) = 5$ ✓. Both equations are satisfied.
- 12) **Choice A is correct.** (8.A.1) FOIL: $(x + 2)(x + 6) = x^2 + 6x + 2x + 12 = x^2 + 8x + 12$.
- 13) **Choice A is correct.** (8.A.1) Zero slope means $\Delta y = 0$, so the line is perfectly horizontal (no vertical change). A vertical line has undefined slope.
- 14) **Choice C is correct.** (8.G.1) The sum of the perimeters gives $2(x + 5) + 2(y + 5) = 56$, so $2x + 2y + 20 = 56$ and $x + y = 18$. Since $x - y = 2$, adding the equations gives $2x = 20$, so $x = 10$ cm.
- 15) **The correct answer is 90.** (8.D.1) Substitute $x = 6$: $y = 5(6) + 60 = 30 + 60 = 90$.
- 16) **Choice B is correct.** (8.D.2) Find where the graph crosses the horizontal line $y = 2$. This occurs at the point $(2, 2)$, so $x = 2$.
- 17) **Choice B is correct.** (8.G.3) Lateral area = $4 \times \frac{1}{2}(10)(13) = 4 \times 65 = 260$ m².
- 18) **Choice A is correct.** (8.G.2) Reflecting A across the x -axis maps $(x, y) \rightarrow (x, -y)$: $(1, 1) \rightarrow (1, -1)$, $(3, 1) \rightarrow (3, -1)$, $(2, 3) \rightarrow (2, -3)$, giving B exactly.
- 19) **Choice D is correct.** (8.A.2) In the context of a linear equation, the slope represents the rate of change. Here, the fare increases by \$2 for each additional mile.
- 20) **The correct answer is A,C.** (8.G.2) Correct: (A) Corresponding angles are congruent — definition of similarity. (C) Corresponding sides are proportional — they scale by a constant factor k . Incorrect: (B) Equal length is congruence, not similarity. (D) Congruence requires equality; similarity allows scaling. (E) Scale factor can be any positive number; $k < 1$ is a reduction, still similarity.
- 21) **Choice A is correct.** (8.N.1) Subtract x and 6: $x = 6$. Check: $2(6) + 6 = 18$ and $6 + 12 = 18$ ✓. (Distractor B: arithmetic error; C: adding instead of subtracting.)
- 22) **Choice C is correct.** (8.G.1) Subtract 1: $2x \geq 8$. Divide by 2: $x \geq 4$.
- 23) **Choice B is correct.** (8.G.2) A strict inequality, such as $<$, uses a dashed boundary line because points on the line are not included in the solution.
- 24) **Choice B is correct.** (8.D.2) A function is linear if and only if its first differences are constant. Since all differences equal 4, this function is linear.
- 25) **Choice C is correct.** (8.G.2) Radius $r = 12$ cm. $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 1728 = 7234.56$ cm³.
- 26) **Choice A is correct.** (8.D.2) The slope is 1.1 (in units of \$100), so each 1°C increase adds $1.1 \times \$100 = \110 in sales.



Hi, Future Algebra Thinker!

◇ Grade 8 practice builds a bridge to high school mathematics through exponents, linear systems, functions, transformations, geometry, and data models. This deep and steady book gave you six full Grade 8 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 8 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

PRACTICE TODAY. ACHIEVE TOMORROW.

6

Give your child the confidence and skills they need with **6 full-length Grade 8 Math** practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!

WHAT'S INSIDE?



Standards-Aligned Practice

Questions designed to cover essential Grade 8 math standards.



Variety of Question Types

Multiple-choice, short answer, and more to build well-rounded skills.



Real-World Applications

Engaging problems that connect math to everyday life.



Step-by-Step Progress

Track improvement and build confidence with every test.



COVERS ALL ESSENTIAL TOPICS

- | | |
|---------------------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
| | ✓ And More! |



6 PRINTED TESTS



2 ONLINE TESTS



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