

10

Nebraska

NSCAS Growth

GRADE
8
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10

PRINTED
TESTS



2

ONLINE
TESTS



Build Confidence



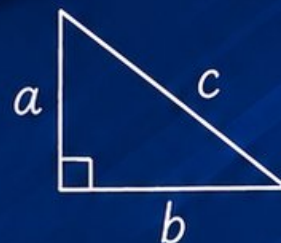
Master Key Math Skills



Answer Explanations for
Every Question



Test-Taking Strategies
That Work



$$y = mx + b$$



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

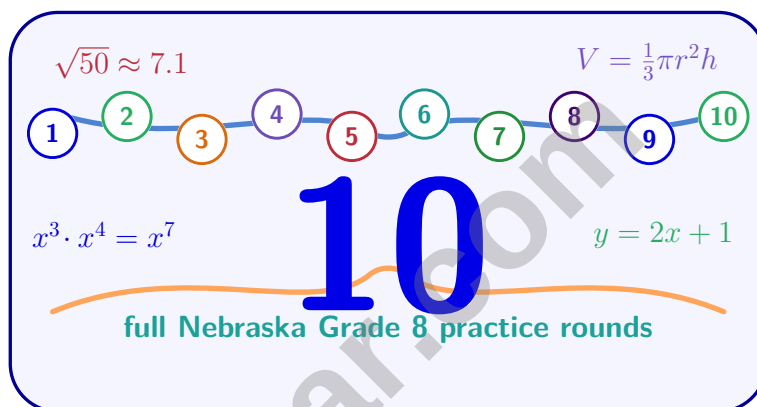


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Nebraska NSCAS Growth Grade 8 Math Practice Tests

Nebraska Grade 8 NSCAS Growth Practice for organized review through integer exponents, real numbers, equations, surface area, data, and chance



Ten complete 40-question Grade 8 NSCAS Growth 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



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Welcome, Nebraska Grade 8 Problem Solver!

Ten focused rounds for sharper Nebraska NSCAS Growth math thinking

This book gives you ten full Grade 8 NSCAS Growth 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 **Understanding Scientific Notation** (8.N.2): Represent numbers with positive and negative exponents and in scientific notation. It also prepares you for **Multiplying Linear Expressions and Factoring** (8.A.1): Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.

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 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 **Slope as Rate of Change** (8.A.1): Determine and describe the rate of change through tables and graphs. Another recurring target is **Composite Figures: Area and Perimeter** (8.A.2): Applications: Students will solve authentic problems involving multi-step equations.

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?

Ten Nebraska NSCAS Growth 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 Nebraska 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 **Solving Systems of Two Equations** (8.G.1): Systems of equations are not a dedicated NE CCR 2022 Grade 8 standard. The same routine helps with **Turning Repeating Decimals into Fractions** (8.A.1): Describe the difference between rational and irrational; convert repeating decimals.



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For more practice
& answers

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- 1) A square pyramid has base side length 6 m. The altitude (height from apex perpendicular to base) is 4 m. The slant height (from apex to midpoint of base edge) is approximately 5 m. Which formula gives the lateral surface area?
- ☐ A. $\frac{1}{2}(6)(4) \times 4 = 48 \text{ m}^2$ ☐ C. $4 \times \frac{1}{2}(6)(5) = 60 \text{ m}^2$
☐ B. $\frac{1}{2}(6)(5) \times 3 = 45 \text{ m}^2$ ☐ D. $4 \times \frac{1}{2}(6)(4) = 48 \text{ m}^2$
- 2) A furniture store's weekly profit is modeled by $P = 150w - 800$, where P is profit in dollars and w is number of items sold. What does the -800 represent?
- ☐ A. The profit per item sold ☐ C. The loss when $w = 0$
☐ B. The weekly operating costs ☐ D. The revenue generated
- 3) What is $\sqrt[3]{1728}$?
- ☐ A. 10 ☐ C. 12
☐ B. 11 ☐ D. 13
- 4) $\frac{(4 \times 10^6) \times (3 \times 10^2)}{6 \times 10^4} = ?$
- ☐ A. 2×10^2 ☐ C. 2×10^4
☐ B. 12×10^8 ☐ D. 0.2×10^4
- 5) Factor $x^2 + 2x - 8$.
- ☐ A. $(x + 4)(x - 2)$ ☐ C. $(x - 2)(x - 4)$
☐ B. $(x + 2)(x - 4)$ ☐ D. $(x + 1)(x + 8)$
- 6) Which set of ordered pairs does NOT represent a function?
- ☐ A. $\{(0, 5), (1, 6), (2, 7), (3, 8)\}$ ☐ C. $\{(1, 3), (2, 3), (3, 3), (4, 3)\}$
☐ B. $\{(1, 1), (2, 4), (3, 9), (4, 16)\}$ ☐ D. $\{(2, 4), (2, 5), (3, 6), (4, 7)\}$



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7) Compare verbal descriptions: Function f : “starts at 100, increases by 8 per unit.”
Function g : “starts at 95, increases by 10 per unit.” After 20 units, which is larger?

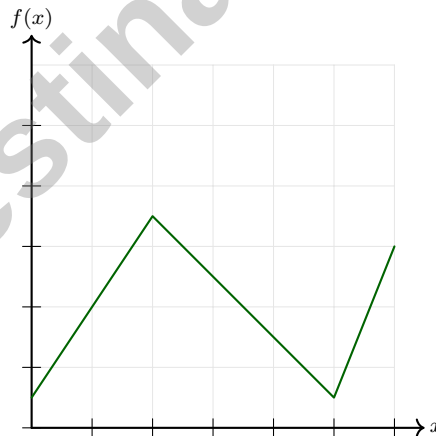
- ☐ A. f is larger
☐ B. g is larger
☐ C. Both equal
☐ D. Cannot determine

8) Which equation is LINEAR?

- ☐ A. $y = 5 - 3x^2$
☐ B. $y = \sqrt{x + 4}$
☐ C. $y = 7 + 2x$
☐ D. $y = \frac{10}{x}$

9) A student is given the equation $y = 5x + 8$ and claims the slope is 8 and the y -intercept is 5. What is the student's error?

- ☐ A. The student reversed the slope and intercept.
☐ B. The student added slope and intercept incorrectly.
☐ C. The student forgot to simplify the equation.
☐ D. The student mixed up x and y values.



10)

At which x -value does the graph reach its maximum?

- ☐ A. $x = 0$
☐ B. $x = 2$
☐ C. $x = 5$
☐ D. $x = 6$



11) A rhombus has all four sides equal to 8 cm. After being reflected across the y -axis, what is the length of each side of the reflected rhombus?

- ☐ A. The sides change length ☐ C. 16 cm
☐ B. 4 cm ☐ D. 8 cm

12) A triangle with vertices at $(1, 0)$, $(3, 0)$, and $(2, 2)$ is reflected across the x -axis. What is the y -coordinate of the image of the vertex originally at $(2, 2)$?

- ☐ A. 2 ☐ C. 0
☐ B. -2 ☐ D. 4

13) Two parallel lines cut by a transversal create 8 angles. If one angle is 67° , which angle measure does NOT appear among the 8 angles?

- ☐ A. 67° ☐ C. 47°
☐ B. 113° ☐ D. Both 67° and 113° appear

14) The cost of a gym membership is \$50 per month. If Sarah spends a total of \$200 after t months, write and solve an equation to find t . Verify your answer.

15) Two supplementary angles are in the ratio 4 : 11. Find the measure of the smaller angle.

- ☐ A. 20° ☐ C. 55°
☐ B. 40° ☐ D. 48°



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& answers

1) Simplify $\frac{g^8 \cdot g^{-2}}{g^3}$.

☐ A. g^{-3}

☐ B. g^9

☐ C. g^{13}

☐ D. g^3

- 2) A teacher selects 2 students from a class of 6 to be line leaders. The first student is the main leader and the second is the assistant. In how many ways can this be done?

☐ A. $6 + 5 = 11$

☐ B. $6 \times 5 = 30$

☐ C. $\binom{6}{2} = 15$

☐ D. $6^2 = 36$

- 3) Triangle X is similar to Triangle Y . In Triangle X , one angle measures 60° . What is the measure of the corresponding angle in Triangle Y ?

☐ A. 30°

☐ B. 60°

☐ C. 120°

☐ D. Cannot be determined

- 4) If $f(x) = x^2 - 4x + 3$, what is $f(2)$?

☐ A. -1

☐ B. 0

☐ C. 3

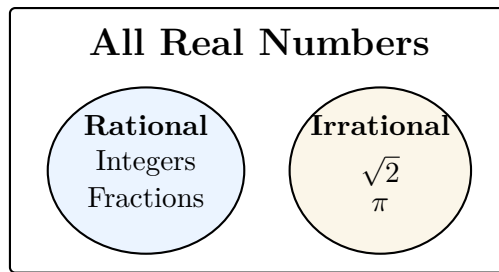
☐ D. 7

- 5) A car travels 180 miles in 3 hours. What is the slope (speed in miles per hour)?



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& answers



6)

Which statement is true?

- ☐ A. All square roots are irrational ☐ D. Every irrational number can be written as a fraction
☐ B. All integers are rational
☐ C. Some repeating decimals are irrational

7) A circular garden has radius 2 meters. Using $\pi \approx 3.14$, which is the best estimate of the circumference?

- ☐ A. 6.28 m ☐ C. 12.8 m
☐ B. 25.12 m ☐ D. 12.56 m

8) Which deposit would earn more interest after 2 years at 5% simple interest?

- ☐ A. \$1,000 ☐ C. \$2,000
☐ B. \$1,500 ☐ D. \$2,500

9) What is $0.\overline{6}$ as a fraction?

- ☐ A. $\frac{1}{6}$ ☐ C. $\frac{6}{99}$
☐ B. $\frac{6}{10}$ ☐ D. $\frac{2}{3}$



1) To the nearest hundredth, $\sqrt{19} \approx ?$

☐ A. 4.35

☐ C. 4.37

☐ B. 4.38

☐ D. 4.36

2) A computer downloads files at 15 MB per second. How many MB are downloaded in 2.5 seconds?

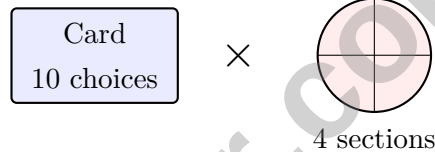
☐ A. 30 MB

☐ C. 37.5 MB

☐ B. 35 MB

☐ D. 40 MB

3) A game requires picking a card from a deck of 10 cards and then spinning a spinner with 4 sections. How many possible results are there?



☐ A. $10 + 4 = 14$

☐ C. $10 - 4 = 6$

☐ B. $10 \times 4 = 40$

☐ D. 4^{10}

4) Solve by elimination:
$$\begin{cases} 2x + 3y = 11 \\ 2x - y = 3 \end{cases}$$

☐ A. (1, 3)

☐ C. (3, 1)

☐ B. $(2, \frac{7}{3})$

☐ D. $(\frac{5}{2}, 2)$



5) A bicycle rental costs \$5 base fee plus \$3 per hour. If the relationship is graphed with hours on the x -axis and cost on the y -axis, what is the slope?

☐ A. $\frac{3}{5}$

☐ C. 3

☐ B. 8

☐ D. 5

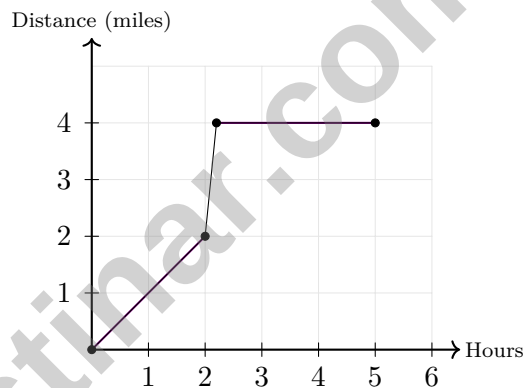
6) A chemist mixes a 30% acid solution with an 80% acid solution to make 100 mL of a 50% solution. Let x = volume of 30% solution (mL). Which equation represents the acid content?

☐ A. $0.3x + 0.8(100 - x) = 0.5(100)$

☐ C. $30x + 80x = 50 \cdot 100$

☐ B. $0.3(100 - x) + 0.8x = 50$

☐ D. $0.3x + 0.8x = 50$



7)

A traveler's distance graph shows: 0 to 2 hours rising, then a jump, then flat. What does the jump represent?

☐ A. The traveler rested without moving

☐ C. This graph cannot represent a real physical scenario (discontinuity)

☐ B. The traveler waited at the same distance

☐ D. The traveler went backward in distance


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& 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.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (8.G.3) Lateral surface area uses the slant height (not altitude). Each triangular face has base 6 and height (slant height) 5: area = $\frac{1}{2}(6)(5)$. Four triangles give $4 \times \frac{1}{2}(6)(5) = 60 \text{ m}^2$. Options A and D incorrectly use altitude (4) instead of slant height.
- 2) **Choice C is correct.** (8.D.2) When $w = 0$, $P = -800$, meaning there is a \$800 loss with no sales. This represents fixed costs or initial loss.
- 3) **Choice C is correct.** (8.G.2) $12 \times 12 \times 12 = 1728$, so $\sqrt[3]{1728} = 12$.
- 4) **Choice C is correct.** (8.D.2) Numerator: $(4 \times 3) \times 10^{6+2} = 12 \times 10^8$. Then divide: $\frac{12 \times 10^8}{6 \times 10^4} = 2 \times 10^4$.
- 5) **Choice A is correct.** (8.A.1) Find two numbers that multiply to -8 and add to 2 : 4 and -2 . So $x^2 + 2x - 8 = (x + 4)(x - 2)$.
- 6) **Choice D is correct.** (8.A.2) Input 2 appears with outputs 4 and 5, which violates the function definition. Options A, B, and C are all functions.
- 7) **Choice B is correct.** (8.D.2) $f(20) = 100 + 8(20) = 260$. $g(20) = 95 + 10(20) = 295$. Since $295 > 260$, g is larger.
- 8) **Choice C is correct.** (8.D.2) $y = 7 + 2x$ is in the form $y = mx + b$ with $m = 2$ and $b = 7$. The other options have squared terms, square roots, or reciprocals.
- 9) **Choice A is correct.** (8.G.1) In $y = mx + b$, the slope is $m = 5$ and the y -intercept is $b = 8$. The student swapped them.
- 10) **Choice B is correct.** (8.A.1) The highest point on the graph is at $x = 2$, where $f(2) = 2.5$. This is the maximum of the piecewise function shown.
- 11) **Choice D is correct.** (8.G.2) Reflection is a rigid motion that preserves side lengths. The reflected rhombus has sides of 8 cm.
- 12) **Choice B is correct.** (8.G.2) Reflection across the x -axis maps $(x, y) \rightarrow (x, -y)$. So $(2, 2) \rightarrow (2, -2)$, giving y -coordinate -2 .
- 13) **Choice C is correct.** (8.G.1) When parallel lines are cut by a transversal, all angles are either 67° or $180 - 67 = 113^\circ$. Since $47^\circ \neq 67^\circ$ and $47^\circ \neq 113^\circ$, it does not appear.
- 14) **The correct answer is $t = 4$ months.** (8.N.1) The equation is $50t = 200$. Divide both sides by 50: $t = 4$ months. Verify: $50(4) = 200$ ✓.
- 15) **Choice D is correct.** (8.G.1) If the angles are $4k$ and $11k$, then $4k + 11k = 180$, so $15k = 180$ and $k = 12$. The smaller angle is $4k = 48^\circ$.
- 16) **Choice C is correct.** (8.A.2) $V = \frac{1}{3} \times B \times h \Rightarrow 500 = \frac{1}{3} \times 100 \times h \Rightarrow h = 15 \text{ m}$.
- 17) **Choice B is correct.** (8.A.2) Decompose using addition and subtraction. First rectangle = $10 \times 6 = 60 \text{ ft}^2$. Second rectangle = $8 \times 4 = 32 \text{ ft}^2$. The overlap region is $4 \times 4 = 16 \text{ ft}^2$ and must be subtracted to avoid double-counting. Total = $60 + 32 - 16 = 76 \text{ ft}^2$.
- 18) **Choice A is correct.** (8.D.2) When both variables increase together, there is a positive correlation. Negative correlation occurs when one increases while the other decreases.
- 19) **The correct answer is B, E.** (8.D.3) 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 $P(\text{yellow}) = 0$.
- 20) **Choice A is correct.** (8.G.2) Joint frequency is the intersection count divided by the grand total: $\frac{63}{150} = \frac{21}{50} = 0.42$.
- 21) **Choice A is correct.** (8.D.1) Absolute deviations: $|2 - 4.5| = 2.5$ (twice), $|4 - 4.5| = 0.5$ (three times), $|6 - 4.5| = 1.5$ (twice), $|8 - 4.5| = 3.5$. Sum = $5 + 1.5 + 3 + 3.5 = 13$. MAD = $13/8 = 1.625$.
- 22) **Choice C is correct.** (8.N.2) Product rule: add exponents. $x^3 \cdot x^2 = x^{3+2} = x^5$, not x^6 (which is the error of multiplying exponents).
- 23) **Choice C is correct.** (8.G.1) Proportional relationship: $y = 3x$. For $x = 12$: $y = 3(12) = 36$ gallons.
- 24) **Choice C is correct.** (8.G.1) Subtract the second from the first: $(2x + 5y) - (2x + y) = 19 - 7$, so $4y = 12$, giving $y = 3$. Substitute: $2x + 1 = 7$, so $x = 3$. Solution: $(3, 3)$.



Hi, Thoughtful Reader!

◇ A strong Grade 8 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

★ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 10 opportunities to rehearse test-day habits. ★

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 8 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

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

Jay Daie

Your Reading-and-Math Helper

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