

6

NORTH DAKOTA

NDSA

GRADE

7

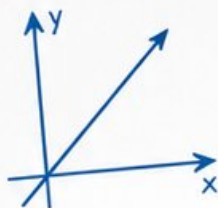
MATH

PRACTICE TESTS



Standards Aligned
Problem Solving For
Comprehensive
Assessment Programs

$$y = mx + b$$



$$2(x - 3) = 4x + 6$$

6 PRINTED TESTS



2 ONLINE TESTS



USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**
FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.



Build
Confidence



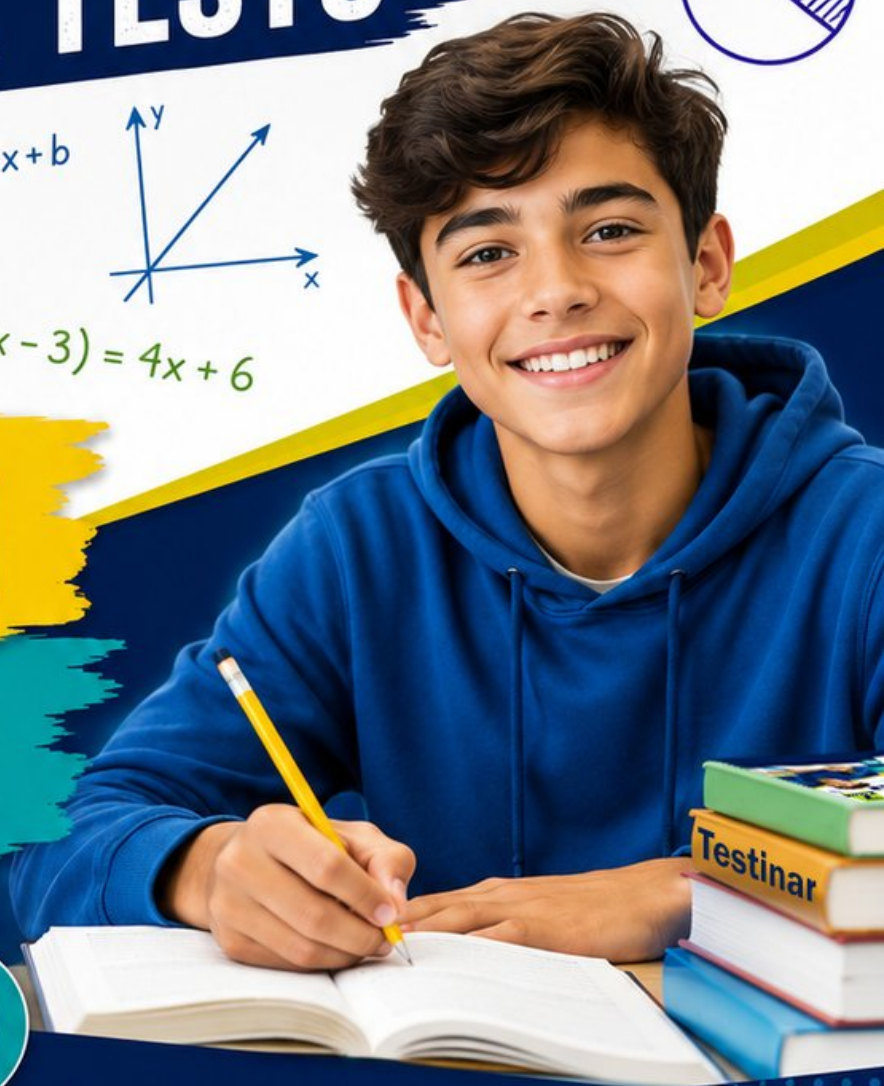
Strengthen
Math Skills



Detailed Answers
& Explanations

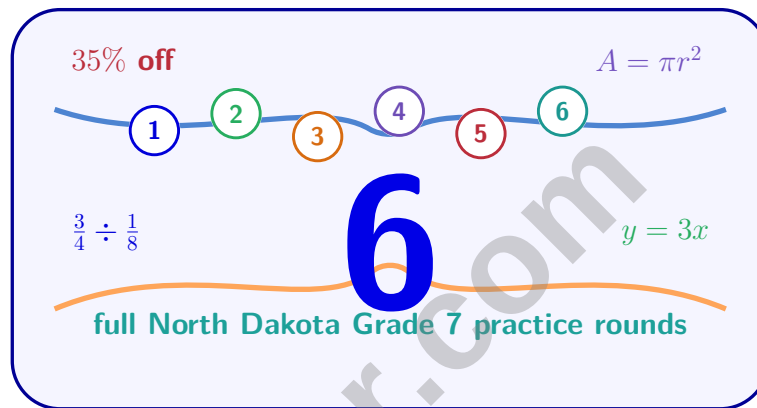


Improve Test
Performance



6 North Dakota NDSA Grade 7 Math Practice Tests

Standards-Aligned Practice with Review, Answer Keys, and Explanations



Six complete 40-question Grade 7 NDSA 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, North Dakota Grade 7 Problem Solver!

Six focused rounds for sharper NDSA math thinking

This book gives you six full Grade 7 NDSA 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 North Dakota 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 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.

North Dakota 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 NDSA tests, 240 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.
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.



Scan me!
For more practice
& answers

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1) A circle has circumference 62.8 inches. What is its radius? Use $\pi \approx 3.14$.

☐ A. 5 in

☐ C. 20 in

☐ B. 10 in

☐ D. 40 in

2) Convert 0.08 to a percent.

☐ A. 0.8%

☐ C. 80%

☐ B. 800%

☐ D. 8%

3) A point $P(2, -5)$ is reflected over the x -axis, and then the image is translated by the vector $(3, 4)$. What is the final location of the point?



4) Solve: $\frac{2}{3}x + 4 = 10$ and verify using the reciprocal property.

☐ A. $x = 3$

☐ C. $x = 9$

☐ B. $x = 6$

☐ D. $x = 12$

5) Two sides of a triangle are 6 cm and 14 cm. If the third side is a whole number, how many possible triangles can be drawn?

☐ A. 9

☐ C. 13

☐ B. 11

☐ D. Infinitely many



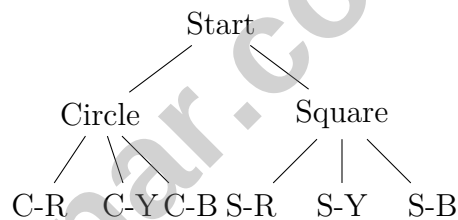
6) To simulate the compound event of flipping a coin and rolling a die, how many equally likely outcomes should be in the sample space?

☐ A. 6☐ C. 12☐ B. 8☐ D. 18

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?

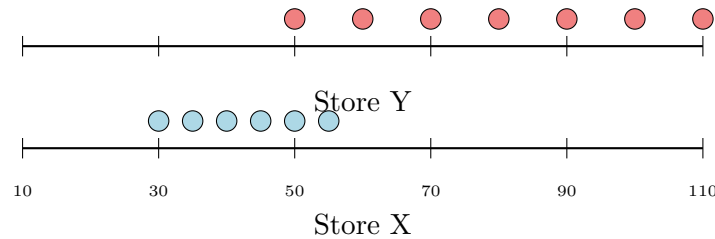
☐ A. $\frac{12}{52}$ ☐ C. $\frac{4}{13}$ ☐ B. $\frac{2}{13}$ ☐ D. $\frac{1}{4}$

8) A tree diagram shows all outcomes for selecting a shape (Circle or Square) and a color (Red, Yellow, or Blue). How many final branches should the tree have?

☐ A. 2 branches☐ C. 5 branches☐ B. 3 branches☐ D. 6 branches

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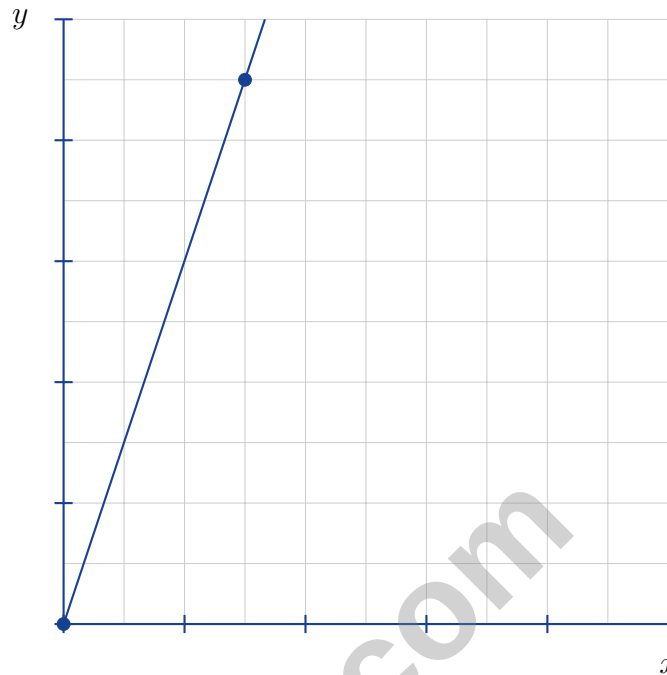
- 9) Two dot plots show ages of customers at two stores (scale: coordinate 0 = age 10, coordinate 2 = age 30, coordinate 4 = age 50, etc.):



The distributions:

- ☐ A. Have the same center and spread ☐ C. Show Store X customers are younger and more tightly clustered
☐ B. Are completely separate with no overlap ☐ D. Show Store Y has identical variability to Store X
- 10) A back-to-back stem-and-leaf plot compares the heights of two basketball teams. The stem represents tens of inches. For Team A, stem 7 has leaves 0, 2, 4, 6 (on the left). For Team B, stem 7 has leaves 1, 3, 5, 8 (on the right). How many players are in the 70–79 inch range in total?
- ☐ A. 4 players ☐ C. 12 players
☐ B. 8 players ☐ D. 16 players
- 11) Two similar triangles have areas in the ratio 4 : 9. If the smaller triangle has a base of 8 cm, what is the base of the larger triangle?





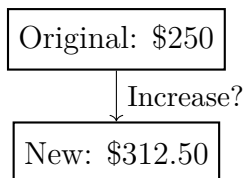
1)

The origin and the point (3, 9) lie on the same proportional line. What is the unit rate k ?

☐ A. 0.3

☐ C. 3

☐ B. 1

☐ D. 9


2)

A diagram shows an original price of \$250 increased to \$312.50. What is the percent increase?

☐ A. 20%

☐ C. 30%

☐ B. 62.50%

☐ D. 25%


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- 3) To simulate the probability of rolling a sum of 8 or higher with two dice, which initial step is necessary?
- ☐ A. Determine all possible outcomes that satisfy the condition
- ☐ B. Roll the dice only once
- ☐ C. Use only a spinner with 4 sectors
- ☐ D. Assume equal likelihood of all sums
- 4) A card is drawn from a deck with 5 cards (labeled 1 to 5), and a coin is flipped. If you want to find outcomes where the card is even and the coin is Heads, how many favorable outcomes are there?
- ☐ A. 1
- ☐ B. 2
- ☐ C. 3
- ☐ D. 5
- 5) Consider the sample space for flipping a coin and rolling a die. How many total possible outcomes are there?
- ☐ A. 6
- ☐ B. 8
- ☐ C. 12
- ☐ D. 24
- 6) Machine A has MAD 0.08 cm and Machine B has MAD 0.15 cm. What is the difference in MADs?



1) Which statement is true?

☐ A. $-5 + 3 = 8$

☐ C. $4 + (-9) = 5$

☐ B. $-12 + 20 = -8$

☐ D. $-5 + 3 = -2$

2) Solve: $-2x - 7 = 1$

$$-2x - 7 = 1$$



Add 7

$$-2x = 8$$



Divide by -2

$$x = -4$$

☐ A. $x = -4$

☐ C. $x = 2$

☐ B. $x = -2$

☐ D. $x = 4$

3) A rectangular living room has actual dimensions 6 m by 8 m. One scale drawing shows it as 3 cm by 4 cm. What is the scale of this drawing?

☐ A. 1 cm : 2 m

☐ C. 1 cm : 4 m

☐ B. 1 cm : 3 m

☐ D. 3 cm : 8 m

4) A dataset has a mean of 60 and a median of 65. Where are the outliers likely located?

☐ A. On the high end

☐ C. No outliers are present

☐ B. On the low end

☐ D. Evenly distributed

5) A bar graph shows: Salaries \$6M, Programs \$2M, Facilities \$1.5M, Admin \$0.5M. The bars extend to heights 6, 2, 1.5, and 0.5 respectively. However, the y-axis has no label indicating units. What makes this graph misleading?

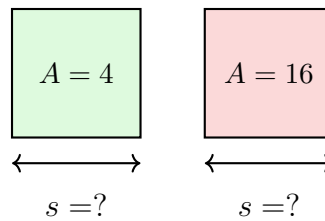
☐ A. The y-axis label is missing, so readers cannot confirm the unit (millions versus thousands)

☐ B. The bars are not drawn to scale

☐ C. The title is unclear

☐ D. The colors are too similar





6)

Which square has the longer side?

- ☐ A. The left square (area = 4) ☐ C. They have equal sides
☐ B. The right square (area = 16) ☐ D. Cannot be determined

7) A price p increases by 7%. Write the new price in factored form.

- ☐ A. $p + 0.07p = p(1 + 0.07) = 1.07p$ ☐ C. $0.07p$
☐ B. $p - 0.07p$ ☐ D. $p + 7$

8) Two box plots compare the price (in dollars) of gasoline over a year at two locations. Location 1: Min = \$2.10, Median = \$2.50, Max = \$2.90. Location 2: Min = \$2.00, Median = \$2.50, Max = \$3.20. A traveler wants stable prices. Which location has more volatile prices?

- ☐ A. Location 1 (smaller range: \$0.80) ☐ D. Location 1 (higher median means stability)
☐ B. Location 2 (larger range: \$1.20)
☐ C. Both have identical volatility

9) What is 0.4×0.5 ?

- ☐ A. 0.2 ☐ C. 1.8
☐ B. 0.9 ☐ D. 2



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North Dakota NDSA 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 North Dakota NDSA practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.G.4-7.G.6) $C = 2\pi r \Rightarrow 62.8 = 2(3.14)r \Rightarrow 62.8 = 6.28r \Rightarrow r = 10$ in.
- 2) **Choice D is correct.** (7.RP.3) Multiply by 100: $0.08 \times 100 = 8\%$. Equivalently, $0.08 = \frac{8}{100} = 8\%$.
- 3) **The correct answer is (5, 9).** (7.G.1-7.G.5) First reflection over x -axis: $(2, -5) \rightarrow (2, 5)$. Then translation by $(3, 4)$: $(2, 5) + (3, 4) = (5, 9)$.
- 4) **Choice C is correct.** (7.EE.3-7.EE.4) Subtract 4: $\frac{2}{3}x = 6$. Multiply by $\frac{3}{2}$ (reciprocal): $x = 6 \times \frac{3}{2} = 9$. Check: $\frac{2}{3}(9) + 4 = 6 + 4 = 10$ ✓.
- 5) **Choice B is correct.** (7.G.1-7.G.5) Triangle Inequality: $|14 - 6| < c < 14 + 6$ gives $8 < c < 20$. Whole numbers in this range: 9, 10, 11, ..., 19 which is 11 values.
- 6) **Choice C is correct.** (7.SP.5-7.SP.8) Coin outcomes: 2 (heads, tails). Die outcomes: 6. Total: $2 \times 6 = 12$ outcomes.
- 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 D is correct.** (7.SP.5-7.SP.8) Each of the 2 shapes branches into 3 color outcomes. Total: $2 \times 3 = 6$ final branches.
- 9) **Choice C is correct.** (7.SP.1-7.SP.4) Store X's dots cluster at coordinates 2–4.5 (ages 30–55, range 25 years, tight cluster). Store Y's dots spread across 4–10 (ages 50–110, range 60 years, wider spread). Store X has younger customers on average and much less variability.
- 10) **Choice B is correct.** (7.SP.1-7.SP.4) Team A has 4 players (70, 72, 74, 76). Team B has 4 players (71, 73, 75, 78). Total = $4 + 4 = 8$.
- 11) **The correct answer is 12.** (7.G.1-7.G.5) Area ratio 4 : 9 gives linear scale factor $\sqrt{4} : \sqrt{9} = 2 : 3$. Larger base = $8 \times \frac{3}{2} = 12$ cm.
- 12) **Choice A is correct.** (7.SP.3) Site X's IQR = $100 - 50 = 50$; Site Y's IQR = $110 - 40 = 70$. Smaller IQR indicates tighter middle-50% spread, so Site X is more consistent.
- 13) **Choice B is correct.** (7.SP.5-7.SP.8) This is the "gambler's fallacy." Each coin flip is independent, so the probability of tails on the next flip remains $\frac{1}{2}$ regardless of previous outcomes.
- 14) **Choice C is correct.** (7.SP.6) Experimental probability of heads: $\frac{42}{100} = 0.42$. Theoretical: 0.5. Difference: $|0.42 - 0.5| = 0.08$.
- 15) **Choice A is correct.** (7.SP.5-7.SP.8) $\frac{1}{3} = 0.\overline{3} \approx 0.33$ when rounded to the nearest hundredth.
- 16) **Choice A is correct.** (7.SP.1-7.SP.4) $\frac{50}{125} = \frac{x}{5000}$. Reduce: $\frac{2}{5} = \frac{x}{5000} \Rightarrow x = 2000$.
- 17) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|68-75|}{75} \times 100\% = \frac{7}{75} \times 100\% \approx 9.3\%$.
- 18) **The correct answer is B,C.** (7.G.1-7.G.5) B and C are equivalent and correct: two angles are equal (50° each), so by the Isosceles Triangle Theorem, the sides opposite those angles must be equal. A is wrong (equilateral requires all angles 60°). D is wrong (two angles are the same).
- 19) **Choice C is correct.** (7.EE.1-7.EE.2) The area model shows $4a$ (left) and 8 (right). Sum: $4a + 8$.
- 20) **Choice D is correct.** (7.RP.1-7.RP.3) Model length in meters: $200 \div 200 = 1$ meter = 100 cm.
- 21) **Choice A is correct.** (7.NS.1-7.NS.3) Subtracting a negative becomes addition: $-2 - (-6) = -2 + 6 = 4$.
- 22) **Choice D is correct.** (7.RP.3) A 20% increase of \$40 is $0.20 \times 40 = 8$ dollars.
- 23) **Choice D is correct.** (7.RP.3) Working backward: $107.10 \div 1.07 = \$100$ before tax. So discounted price was \$100, making discount = $120 - 100 = \$10$.
- 24) **Choice D is correct.** (7.NS.1b) Adding zero to any number leaves it unchanged (additive identity). $-7 + 0 = -7$.
- 25) **Choice C is correct.** (7.EE.1-7.EE.2) Difference of 10 and w means 10 minus w : $10 - w$.
- 26) **Choice A is correct.** (7.EE.1) Combine x^2 terms: $(6 + 2)x^2 - 3x = 8x^2 - 3x$. The x term is not like the x^2 terms.
- 27) **Choice A is correct.** (7.EE.1-7.EE.2) The GCF of 4 and 12 is 4. Factor out: $4c - 12d = 4(c - 3d)$.
- 28) **Choice C is correct.** (7.SP.1-7.SP.4) $288^\circ \div 360^\circ \times 100 = 80\%$.
- 29) **Choice B is correct.** (7.NS.1-7.NS.3) Division by a fraction equals multiplication by the reciprocal.



Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 6 full Grade 7 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 7 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **6** 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:

6 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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