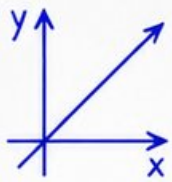
5 North Dakota NDSA GRADE 7 MATH PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs



$y = mx + b$

$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$

$V = \pi r^2 h$

5 PRINTED TESTS

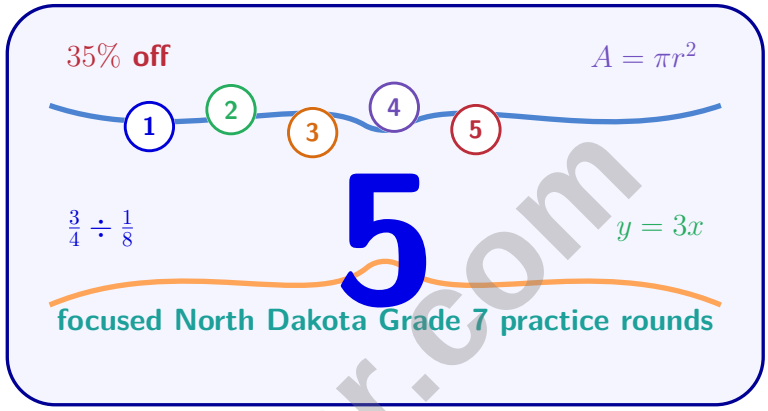
2 ONLINE TESTS

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

5 North Dakota NDSA Grade 7 Math Practice Tests

Test-Ready Grade 7 Practice with Review, Answers, and Support



Five 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!

Five focused rounds for sharper NDSA math thinking

This book gives you five 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.

How to Use This Book

A five-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?

Five NDSA tests, 200 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 3–5	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

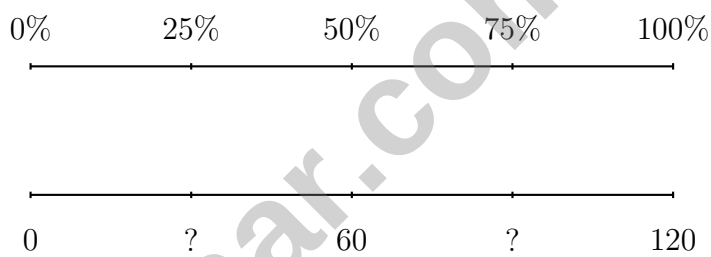
1) A student found the area of a circle with radius 5 cm and got 31.4 cm^2. What error did the student make? Use $\pi \approx 3.14$.

☐ A. Used the diameter instead of radius
☐ B. Used circumference formula $2\pi r$ instead of area
☐ C. Used πd instead of πr^2
☐ D. Computed 3.14×5 instead of 3.14×5^2

2) Evaluate the expression: $-15 - 6 + (-4)$. (Remember: subtraction and addition are performed left to right.)

☐ A. -25
☐ B. -13
☐ C. -5
☐ D. 5

3)



On the double number line, what value corresponds to 25% if 100% equals 120?

☐ A. 15
☐ B. 20
☐ C. 25
☐ D. 30

Markup Table

Cost	Selling Price
$40	$56
$50	?
$100	$140

4) A store uses a consistent markup strategy. Based on the table, what should be the selling price for an item that costs $50?

☐ A. $65
☐ B. $75
☐ C. $60
☐ D. $70

5) What is $12 + (-5)$?

☐ A. 7
☐ B. -7
☐ C. 17
☐ D. -17

6) A worker is paid $18 per hour. What are the earnings for 40 hours?

7) A restaurant surveyed 450 customers about their favorite dish. The circle graph shows pasta is 32%, chicken is 28%, fish is 22%, and vegetarian is 18%. How many customers prefer pasta?

☐ A. 32
☐ B. 99
☐ C. 144
☐ D. 288

8) Runner A covers $\frac{1}{3}$ mile in $\frac{1}{20}$ hour. Runner B covers $\frac{2}{5}$ mile in $\frac{1}{12}$ hour. Which runner is faster?

☐ A. Runner A at $\frac{1}{60}$ mph
☐ B. Runner B at $\frac{24}{5}$ mph
☐ C. They run at the same speed
☐ D. Runner A at $\frac{20}{3}$ mph

9) Maria has a loss of \$45 that she shares equally among 5 friends. How much does each friend owe?

☐ A. Each friend owes \$9
☐ B. Each friend receives \$9
☐ C. Each friend owes −\$9
☐ D. Cannot be divided

10) An account earns \$8.50 per month in interest. After 6 months, how much interest is earned?

☐ A. \$1.42
☐ B. \$14.50
☐ C. \$51
☐ D. \$102

11) Evaluate $a^2 + 2ab$ when $a = 3$ and $b = 2$.

☐ A. 12
☐ B. 13
☐ C. 18
☐ D. 15

1) Which expression represents "the sum of a number d and 3, all divided by 2"?

☐ A. $\frac{d}{2} + 3$
☐ B. $\frac{d+3}{2}$
☐ C. $d + \frac{3}{2}$
☐ D. $2(d + 3)$

2) A bond pays \$360 in simple interest on a principal of \$2000 over 3 years. What is the annual interest rate?

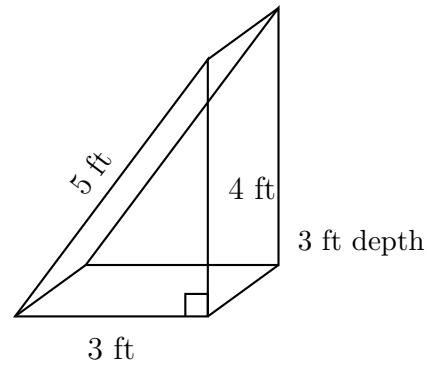
☐ A. 4%
☐ B. 5%
☐ C. 6%
☐ D. 7.2%

3) A student writes the equation $y = 0.5x + 3$ to model a scenario. Is this a proportional relationship? Explain why or why not.

☐ A. Yes, the slope is 0.5.
☐ B. No, the constant is greater than 1.
☐ C. Yes, all linear equations are proportional.
☐ D. No, there is a constant term (+3) so it does not pass through the origin.

4) A recipe calls for 3 cups of flour to make 12 cookies. At this rate, what is the constant of proportionality (cups per cookie)?

☐ A. 4.0
☐ B. 0.75
☐ C. 3.0
☐ D. 0.25



5) A triangular prism has a right triangular base with legs 3 ft and 4 ft (hypotenuse 5 ft), and the prism has depth 3 ft. Find the surface area.

☐ A. 12 ft^2
☐ B. 24 ft^2
☐ C. 48 ft^2
☐ D. 72 ft^2

6) A bakery wants to estimate how often customers buy croissants. It surveys only customers who purchase items on a Thursday morning. What population is being studied?

☐ A. All customers of the bakery
☐ B. Customers who shop on Thursday morning
☐ C. Customers who buy croissants
☐ D. All people in the neighborhood

7) A spinner with unequal sections is spun many times in a simulation. The relative frequency of one outcome converges to 0.32 after 10000 spins. What does this tell you about the theoretical probability of that outcome?

☐ A. The theoretical probability is exactly 0.32
☐ B. The theoretical probability is approximately 0.32
☐ C. The theoretical probability is less than 0.32
☐ D. The theoretical probability cannot be determined from this information

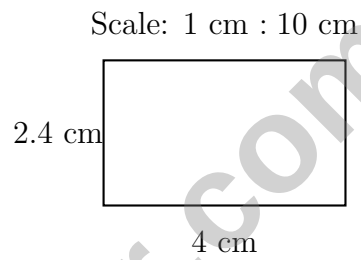
1) A personal trainer charges a one-time consultation fee of \$50 and \$60 per session. The total for several sessions is \$290. Which equation finds s, the number of sessions?

☐ A. $60s + 50 = 290$
☐ B. $50s + 60 = 290$
☐ C. $60 + 50s = 290$
☐ D. $50(s + 60) = 290$

2) Solve: $\frac{x}{2} + 3 > 9$

☐ A. $x > 12$
☐ B. $x < 12$
☐ C. $x > 6$
☐ D. $x > 3$

3)



Using the scale shown, what is the perimeter of the actual rectangle?

☐ A. 12.8 cm
☐ B. 64 cm
☐ C. 128 cm
☐ D. 256 cm

4) A car rental charges \$25 per day plus a \$15 insurance fee. If the total cost is \$140, for how many days was the car rented?

5) When a cylinder is cut by a horizontal plane parallel to its circular bases, what is the shape of the cross-section?

☐ A. Rectangle
☐ B. Ellipse
☐ C. Circle
☐ D. Annulus (ring shape)

6) A backpack costs $35. It is on sale for 30% off. What is the sale price? Show your work.

7) Maya runs at a constant speed. The relationship between distance (miles) and time (hours) is proportional and passes through $(3, 18)$. How far does she run per hour?

☐ A. 3 miles per hour
☐ B. 54 miles per hour
☐ C. 15 miles per hour
☐ D. 6 miles per hour

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.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice D is correct.** 7.G.4-7.G.6 The correct area is $3.14 \times 5^2 = 78.5$ cm^2. The student multiplied $3.14 \times 5 = 15.7$, then doubled to 31.4, missing the squaring step.
2) **Choice A is correct.** 7.NS.1-7.NS.3 Working left to right: $-15 - 6 = -21$, then $-21 + (-4) = -25$.
3) **Choice D is correct.** 7.RP.3 25% is $\frac{1}{4}$ of the total. $\frac{1}{4} \times 120 = 30$.
4) **Choice D is correct.** 7.RP.3 From row 1: markup is $56 - 40 = \$16$ on cost of \$40, a 40% markup. For cost \$50: markup $= 0.40 \times 50 = \$20$, so selling price $= 50 + 20 = \$70$.
5) **Choice A is correct.** 7.NS.1b Subtract the smaller absolute value from the larger: $|12| - |-5| = 12 - 5 = 7$. The larger absolute value is positive, so the answer is 7.
6) **The correct answer is** \$720 **.** 7.RP.1-7.RP.3 Use $18 \times 40 = 720$ dollars.
7) **Choice C is correct.** 7.SP.1-7.SP.4 32% of $450 = 0.32 \times 450 = 144$ customers.
8) **Choice D is correct.** 7.RP.1-7.RP.3 Runner A: $\frac{1/3}{1/20} = \frac{1}{3} \times 20 = \frac{20}{3}$ mph. Runner B: $\frac{2/5}{1/12} = \frac{2}{5} \times 12 = \frac{24}{5} = 4.8$ mph. Runner A is faster.
9) **Choice A is correct.** 7.NS.1-7.NS.3 A loss of \$45 is represented as -45. Dividing: $(-45) \div 5 = -9$ means each owes \$9 (or is owed $\$ - 9$).
10) **Choice C is correct.** 7.NS.1-7.NS.3 Interest earned: $8.50 \times 6 = 51$ dollars.
11) **Choice D is correct.** 7.EE.1-7.EE.2 Substitute: $(3)^2 + 2(3)(2) = 9 + 12 = 15$.
12) **Choice D is correct.** 7.RP.1-7.RP.3 Divide: $\frac{1/2}{1/4} = \frac{1}{2} \times \frac{4}{1} = 2$. For every 1 cup sugar, you need 2 cups flour.
13) **Choice D is correct.** 7.RP.1-7.RP.3 The unit-rate point $(1, 0.4)$ indicates \$0.40 per pound.
14) **The correct answer is** 20 **.** 7.RP.1-7.RP.3 If 2.5 cm = 50 km, then 1 cm $= 50 \div 2.5 = 20$ km.
15) **Choice D is correct.** 7.RP.3 Set up the proportion $\frac{42}{280} = \frac{p}{100}$. Cross-multiply: $p = \frac{4200}{280} = 15\%$.
16) **Choice C is correct.** 7.RP.3 Wants span from \$400 to \$1000, which is \$600 of \$2000 $= 0.30 = 30\%$.
17) **Choice D is correct.** 7.NS.1-7.NS.3 Common denominator is 8: $\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$.
18) **Choice B is correct.** 7.NS.2d Fractions with denominators that include prime factors other than 2 or 5 do not terminate. Only $\frac{1}{3}$ has a denominator (3) with such a factor.
19) **Choice A is correct.** 7.NS.1-7.NS.3 New area $= 120 + \frac{1}{3} \times 120 = 120 + 40 = 160$ sq ft.
20) **The correct answer is A,B.** 7.RP.1-7.RP.3 $k = 5/20 = 0.25$ miles per minute, so A is correct. When $t = 40$: $d = 0.25 \times 40 = 10$ miles, so B is correct. C is incorrect: $d = 0.25t$, not $4t$. D is incorrect: $d = 0.25 \times 60 = 15$ miles, not 12.
21) **Choice B is correct.** 7.NS.1-7.NS.3 Move decimal 5 places right: $0.00008 \to 8$. Exponent is -5.
22) **Choice A is correct.** 7.SP.5-7.SP.8 There are 3 sections labeled C out of 6 equal sections, so $P(C) = \frac{3}{6} = \frac{1}{2}$.
23) **Choice B is correct.** 7.NS.1-7.NS.3 The student made an error. The correct answer is $\sqrt{144} = 12$ because $12 \times 12 = 144$, not $11 \times 11 = 121$.
24) **Choice A is correct.** 7.EE.1-7.EE.2 The GCF of the coefficients 6 and 9 is 3. Factoring: $6x + 9y = 3(2x + 3y)$. This equivalent form uses the greatest common factor to show the structure: three groups of $(2x + 3y)$.
25) **Choice C is correct.** 7.NS.2 A: $0.5 \times 10 = 5$. B: $0.25 \times 20 = 5$. C: $(-2) \times (-3.5) = 7$. D: $(-1) \times 5 = -5$. The largest is 7 (only C).
26) **The correct answer is** 0.03 **.** 7.RP.3 $240 = 2000 \times r \times 4 \Rightarrow 240 = 8000r \Rightarrow r = 0.03$.
27) **Choice D is correct.** 7.RP.3 Origination fee $= 0.01 \times 300000 = \$3,000$.
28) **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.
29) **Choice D is correct.** 7.SP.1-7.SP.4 There are 10 values; the median is between the 5th and 6th values, both in stem 4 (45 and 48).

Author's Note

A Page for Persistence

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 5 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 **5** 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:

- **5** 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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PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY