

10

North Dakota NDSA

GRADE
7
MATH

PRACTICE TESTS

Standards Aligned Problem
Solving For Comprehensive
Assessment Programs



10 PRINTED TESTS

Realistic practice to build
confidence and mastery



2 ONLINE TESTS

Extra practice for
continued success



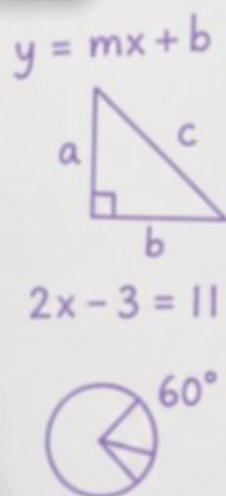
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step
solutions



FOCUSED & EFFECTIVE

Target key math skills
with purposeful practice



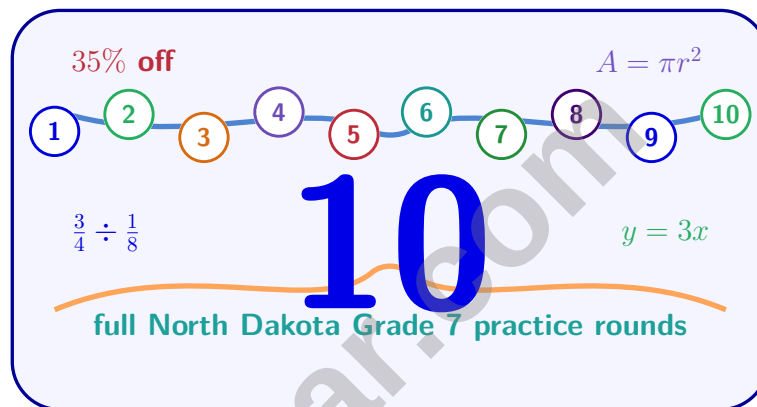
10 PRINTED TESTS
+2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 North Dakota NDSA Grade 7 Math Practice Tests

North Dakota Grade 7 NDSA Practice for steady standards practice through rates, rational operations, equations, geometry, and data analysis



Ten 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!

Ten focused rounds for sharper North Dakota NDSA math thinking

This book gives you ten 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 ten-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?

Ten North Dakota NDSA tests, 400 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.
Tests 7–9	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final North Dakota 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 7 success means recognizing which idea is being tested even when the next question changes format.



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- 1) A car uses 6 gallons of gas to travel 168 miles. At the same rate, approximately how many gallons of gas are needed for a 96-mile trip?

☐ A. ≈ 5 gallons
☐ B. ≈ 3.7 gallons
☐ C. ≈ 4.1 gallons
☐ D. ≈ 3.4 gallons

- 2) A trapezoidal prism has a trapezoidal base with parallel sides 5 inches and 11 inches and a trapezoid height of 6 inches. The prism has a depth of 8 inches. What is the volume in cubic inches?



- 3) Solve for x : $5(x + 3) = 2x + 36$

☐ A. $x = 3$
☐ B. $x = 5$
☐ C. $x = 7$
☐ D. $x = 9$

- 4) A square has an area of 256 square meters. What is its perimeter?

☐ A. 16 meters
☐ B. 32 meters
☐ C. 48 meters
☐ D. 64 meters

- 5) An athlete burns 450 calories on Monday, 520 on Tuesday, and 485 on Wednesday. What is the average calories burned per day?

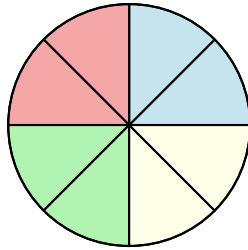
☐ A. 485 calories
☐ B. 515 calories
☐ C. 495 calories
☐ D. 505 calories



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6) Which expression shows the associative property of multiplication?

- ☐ A. $((-3) \times 2) \times 4 = (-3) \times (2 \times 4)$
☐ C. $(-2) \times 5 = 5 \times (-2)$
☐ B. $(-3) \times (2 \times 4) = (-3) \times (4 \times 2)$
☐ D. $3 \times (2 + 4) = (3 \times 2) + (3 \times 4)$



7)

A spinner has 8 equal sections: 2 blue, 2 red, 2 green, and 2 yellow. Which expression shows the complement rule for finding the probability of NOT spinning blue or red?

- ☐ A. $\frac{2}{8}$
☐ C. $1 - \frac{1}{2}$
☐ B. $\frac{3}{8}$
☐ D. $\frac{6}{8}$

8) A beverage vendor mixes drinks using one flavor (Cherry, Lime, or Orange) and one temperature (Hot or Cold). A customer drinks 3 of the 6 possible combinations. How many combinations remain untasted?

- ☐ A. 2
 ☐ C. 4
☐ B. 3
 ☐ D. 5

9) A pictograph uses one star symbol = 50 votes. Candidate A has 7.5 stars, Candidate B has 6 stars. Which statement correctly interprets this pictograph?

- ☐ A. Candidate A received 7.5 votes and Candidate B received 6 votes
☐ B. Candidate A received 375 votes and Candidate B received 300 votes
☐ C. The difference is 75 votes
☐ D. Candidate B has fewer than half the votes of Candidate A



10) A coin was flipped 80 times and came up heads 36 times. What is the experimental probability of getting heads?

☐ A. 0.36☐ C. 0.50☐ B. 0.45☐ D. 0.56

11) Which fraction is equivalent to a probability of 0.75?

☐ A. $\frac{1}{4}$ ☐ C. $\frac{1}{2}$ ☐ B. $\frac{3}{4}$ ☐ D. $\frac{4}{5}$

12) A farmer estimated 350 pounds of vegetables would grow, but the actual yield was 400 pounds. What is the percent error?

☐ A. 14.3%☐ C. 50%☐ B. 85.7%☐ D. 12.5%

13) Expand: $-2(3c + 7)$

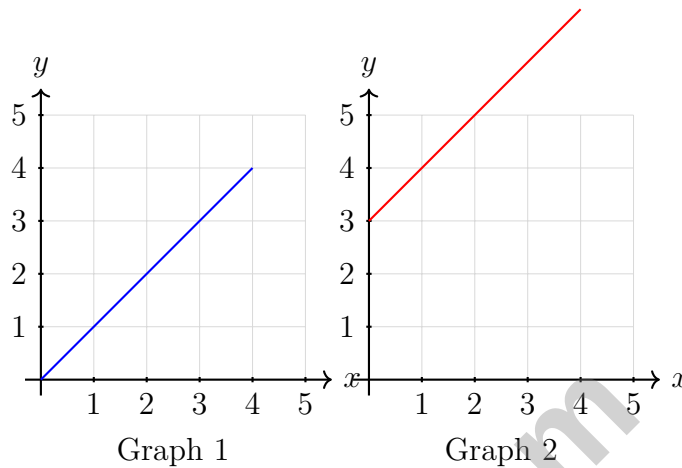
☐ A. $-6c - 14$ ☐ C. $6c - 14$ ☐ B. $-6c + 14$ ☐ D. $-6c + 7$

14) A cylindrical pipe has a volume of 565.2 cubic feet, a radius of 3 feet, and an unknown height. What is the height of the pipe? Use $\pi \approx 3.14$.



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- 1) Two graphs are shown. Graph 1 has a line from $(0, 0)$ to $(4, 4)$. Graph 2 has a line from $(0, 3)$ to $(4, 7)$. Which is proportional?



- ☐ A. Neither is proportional
- ☐ B. Graph 2 is proportional
- ☐ C. Both are proportional
- ☐ D. Graph 1 is proportional
- 2) A playground is shaped like a large rectangle with three smaller rectangles removed. The large rectangle is $20 \text{ m} \times 15 \text{ m}$. The three removed rectangles are each $3 \text{ m} \times 2 \text{ m}$. What is the remaining area?
- ☐ A. 282 m^2
- ☐ B. 300 m^2
- ☐ C. 318 m^2
- ☐ D. 336 m^2
- 3) A store marks up the cost c by \$5, then multiplies by 3 for sale price. Which expression shows the final price?
- ☐ A. $3c + 5$
- ☐ B. $3c + 15$
- ☐ C. $3c - 5$
- ☐ D. $c + 15$



4) Simplify: $4p + 6q + 2p - q$

☐ A. $6p + 5q$

☐ C. $4p + 6q$

☐ B. $6p + 7q$

☐ D. $12pq$

5) Which expression is equivalent to $-3(2x + 5)$?

☐ A. $-6x - 15$

☐ C. $6x - 15$

☐ B. $-6x + 15$

☐ D. $-6x + 5$

6) A triangular prism has a right triangular base with legs 6 m and 8 m (hypotenuse 10 m by Pythagorean theorem). The prism height is 9 m. What is the surface area?

☐ A. 48 m^2

☐ C. 264 m^2

☐ B. 144 m^2

☐ D. 288 m^2

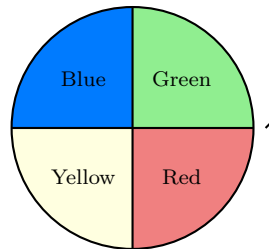
7) A circle graph shows students' favorite subjects. If 35% prefer Math and the school has 260 students, how many students prefer Math?

☐ A. 35

☐ C. 91

☐ B. 65

☐ D. 169



8)

The spinner above has 4 equal sections. In a simulation with 160 spins, the number of times each section appears is: Blue 52, Yellow 38, Red 41, Green 29. Which section has an estimated probability closest to its theoretical probability?

☐ A. Blue

☐ C. Red

☐ B. Yellow

☐ D. Green



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1) A survey asks 400 people about their favorite food. If 28% prefer pizza, how many prefer pizza?

☐ A. 28☐ C. 112☐ B. 72☐ D. 288

2) A sector measuring 162° represents what percent of the circle?

☐ A. 25%☐ C. 45%☐ B. 40%☐ D. 50%

3) Simplify: $2^4 \cdot 2^2$

☐ A. 2^2 ☐ C. 2^8 ☐ B. 2^6 ☐ D. 4^4

4) A student is comparing two equations written by classmates for the same problem: "An online store charges \$6 per item plus \$3.50 shipping." Student A writes: $T = 6n + 3.50$. Student B writes: $T = 3.50 + 6n$. Which statement is true?

☐ A. Only Student A is correct.☐ D. Neither is correct; the answer is $T = 6(n + 3.50)$.☐ B. Only Student B is correct.☐ C. Both are correct because addition is commutative.

5) A bag contains 8 red tokens and 2 blue tokens. Two tokens are drawn without replacement. What is the probability that both tokens are red? Express your answer as a fraction in simplest form.



6) A taxi charges \$2.50 per mile plus a \$3 base fee. If a ride costs \$13, how many miles was the ride?

☐ A. 2 miles

☐ C. 6 miles

☐ B. 4 miles

☐ D. 8 miles

7) Solve for x : $10(x - 2) = 50$

☐ A. $x = 5$

☐ C. $x = 8$

☐ B. $x = 7$

☐ D. $x = 10$

8)

Hours Worked	Earnings (\$)
1	12
2	24
3	36
4	48

Which equation represents the relationship where h = hours and E = earnings?

☐ A. $E = h + 12$

☐ C. $E = 12 + h$

☐ B. $E = 12h$

☐ D. $E = h^2 + 11$

9) A scale drawing has a scale of 1 cm : 5 cm. What is the scale factor?

☐ A. 1

☐ C. 5

☐ B. 2

☐ D. 10

10) A blueprint of a house wing shows a rectangular area 5 cm by 7 cm at scale 1 cm : 3 m. A new blueprint is drawn at scale 1 cm : 6 m. What are the dimensions on the new blueprint?

☐ A. 2.5 cm by 3.5 cm

☐ C. 10 cm by 14 cm

☐ B. 5 cm by 7 cm

☐ D. 15 cm by 21 cm



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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 D is correct.** (7.RP.1-7.RP.3) The gas rate is $6 \div 168 = \frac{1}{28}$ gallon per mile. For 96 miles: $96 \times \frac{1}{28} = \frac{24}{7} \approx 3.43$ gallons, or about 3.4 gallons.
- 2) **The correct answer is 384.** (7.G.4-7.G.6) Base area = $\frac{1}{2}(5 + 11) \times 6 = \frac{1}{2} \times 16 \times 6 = 48 \text{ in}^2$. Volume = $48 \times 8 = 384 \text{ in}^3$.
- 3) **Choice C is correct.** (7.EE.4a) Distribute: $5x + 15 = 2x + 36$. Subtract $2x$: $3x + 15 = 36$. Subtract 15: $3x = 21$. Divide by 3: $x = 7$.
- 4) **Choice D is correct.** (7.NS.1-7.NS.3) Side length: $s = \sqrt{256} = 16$ meters. Perimeter = $4s = 4(16) = 64$ meters.
- 5) **Choice A is correct.** (7.NS.1-7.NS.3) Average = $\frac{450+520+485}{3} = \frac{1455}{3} = 485$ calories.
- 6) **Choice A is correct.** (7.NS.2) The associative property allows regrouping factors without changing the product. A shows this: $(-6) \times 4 = (-3) \times 8 = -24$. B is commutative; C is commutative; D is distributive.
- 7) **Choice C is correct.** (7.SP.5-7.SP.8) Blue or red: $\frac{4}{8} = \frac{1}{2}$. Complement: $1 - \frac{1}{2} = \frac{1}{2} = \frac{4}{8}$.
- 8) **Choice B is correct.** (7.SP.5-7.SP.8) Total combinations: $3 \times 2 = 6$. Tasted: 3. Remaining: $6 - 3 = 3$ combinations.
- 9) **Choice B is correct.** (7.SP.1-7.SP.4) Pictograph: 7.5 stars $\times$ 50 votes/star = 375 votes for A; 6 stars $\times$ 50 votes/star = 300 votes for B. Symbol counts must be multiplied by the legend value.
- 10) **Choice B is correct.** (7.SP.6) Experimental probability = $\frac{\text{observed outcomes}}{\text{total trials}} = \frac{36}{80} = 0.45$. This is close to the theoretical probability of 0.5, showing how observed results approximate expected outcomes.
- 11) **Choice B is correct.** (7.SP.5-7.SP.8) $\frac{3}{4} = 0.75$. Dividing $3 \div 4 = 0.75$.
- 12) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|350-400|}{400} \times 100\% = \frac{50}{400} \times 100\% = 12.5\%$.
- 13) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute -2 : $-2(3c) - 2(7) = -6c - 14$.
- 14) **The correct answer is 20.** (7.G.4-7.G.6) $V = \pi r^2 h \Rightarrow 565.2 = 3.14 \times 9 \times h \Rightarrow 565.2 = 28.26h \Rightarrow h = 20$ feet.
- 15) **Choice D is correct.** (7.NS.1-7.NS.3) $-7 - (-7) = -7 + 7 = 0$. Any number minus itself equals 0.
- 16) **Choice C is correct.** (7.RP.1-7.RP.3) Correct answer: $2 \times 5 = 10$ miles. Student divided ($2 \div 5 = 0.4$) instead of multiplied.
- 17) **Choice C is correct.** (7.RP.3) $A = P + I \Rightarrow 2480 = P + P(0.06)(4) \Rightarrow 2480 = P + 0.24P = 1.24P \Rightarrow P = \2000 .
- 18) **The correct answer is A,D.** (7.G.4-7.G.6) Choice A gives the correct formula. Choice D is verified: $3.14 \times 5^2 = 78.5 \text{ cm}^2$. B confuses formula with circumference. C forgets that area scales with the square of the radius. E mistakes semicircle (half) for one-third.
- 19) **The correct answer is 5.** (7.SP.1-7.SP.4) Compute $40 \div 8 = 5$.
- 20) **Choice C is correct.** (7.NS.1b) Net change = $12 + (-7) + 6 = 12 - 7 + 6 = 5 + 6 = 11$ boxes. The warehouse has a net gain of 11 boxes.
- 21) **Choice A is correct.** (7.EE.1) Option A has like terms $2a$ and $6a$ that have not been combined. All others are fully simplified with no like terms remaining.
- 22) **Choice A is correct.** (7.EE.1-7.EE.2) GCF of coefficients 30, 18, 6 is 6. Factor: $30x - 18y + 6 = 6(5x - 3y + 1)$.
- 23) **Choice C is correct.** (7.SP.1-7.SP.4) 38% of 200 = $0.38 \times 200 = 76$ employees.
- 24) **Choice C is correct.** (7.SP.5-7.SP.8) Each section has probability $\frac{1}{4}$. Expected frequency = $\frac{1}{4} \times 80 = 20$.
- 25) **Choice C is correct.** (7.RP.3) If $45 = 0.50 \times n$, then $n = \frac{45}{0.50} = 90$.
- 26) **Choice C is correct.** (7.EE.1-7.EE.2) Substitute: $3(2 + (-3)) = 3(-1) = -3$.
- 27) **Choice A is correct.** (7.EE.4b) Check: $2(5) - 1 = 10 - 1 = 9$, and $9 > 7$ is true. So $x = 5$ is indeed a solution.
- 28) **Choice D is correct.** (7.RP.1-7.RP.3) The point (1, 0.4) is the unit-rate point, so the constant of proportionality is $k = 0.4$. Therefore, the equation is $y = 0.4x$. (Verify: $(5, 2)$ gives $2 = 0.4 \times 5$ ✓)
- 29) **Choice A is correct.** (7.RP.3) Strategy X: \$600 (no interest). Strategy Y: $\$360 + (5\% \times \$360) \approx \$360 + \$18 = \$378$ total. Strategy X provides more total value ($\$600 > \378), showing that saving more per month outweighs the benefit of interest—a key Grade-7 investment trade-off: higher savings frequency can beat lower savings with interest.



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Hi, Math Hero!

◇ This full-length book gave you ten complete Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 7 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

★ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ★

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 7 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 10 full-length Math practice tests and 2 extra 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:

10 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answer 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



Stronger Math Skills

Build a solid foundation through targeted practice and review.



Better Problem Solving

Develop logical thinking and effective solution strategies.



Deeper Understanding

Reinforce key concepts with clear explanations and meaningful practice.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Achieve Success

Build confidence and perform your best on test day.

TOPICS COVERED

- ✓ Ratios & Proportions
- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Fractions & Decimals
- ✓ Percents
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ And More!



2 EXTRA 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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STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY

PRACTICE ★ REVIEW ★ SUCCEED