

7

Maine

Through Year Assessment

Grade 7 Math Practice Tests



ONLINE

7 PRINTED TESTS + 2 ONLINE TESTS

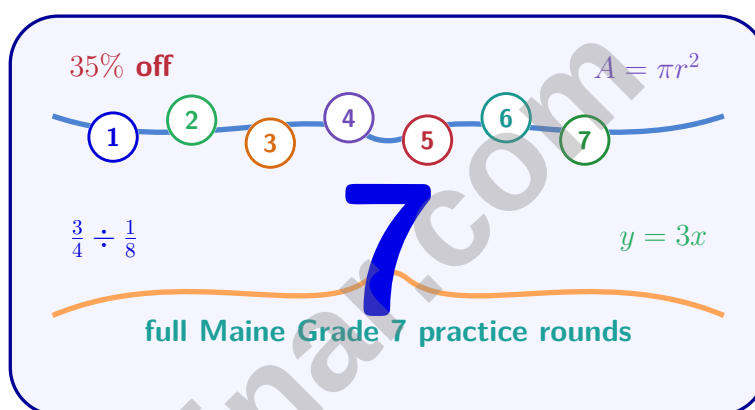


**Standards Aligned Problem Solving
For Comprehensive Assessment Programs**



8 Maine Through Year Assessment Grade 7 Math Practice Tests

A student-friendly path through Maine Grade 7 unit rates, expressions, inequalities, scale figures, data displays, and simulations



Eight complete 40-question Grade 7 Through Year Assessment 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, Maine Grade 7 Problem Solver!

Eight focused rounds for sharper Through Year Assessment math thinking

This book gives you seven full Grade 7 Through Year Assessment 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 Maine 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

An eight-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.

Maine 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?

Eight Through Year Assessment tests, 280 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 7–8	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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) What is $\sqrt{49}$?

☐ A. 6

☐ C. 8

☐ B. 7

☐ D. 9

2) Complete the sign rule: When you multiply a negative number by a negative number, the product is _____.

☐ A. negative

☐ C. zero

☐ B. positive

☐ D. undefined

3) A rental car company charges \$40 per day plus a 15% insurance premium on the daily rate. For a 5-day rental, what is the total cost?

☐ A. \$200

☐ C. \$250

☐ B. \$300

☐ D. \$230

4) Two savings plans are compared over 2 years. Plan X deposits \$1,100 at 4% compound; Plan Y deposits \$1,000 at 6% compound. Which plan has a greater final balance, and by approximately how much?

☐ A. Plan X by \$66

☐ C. Plan X by \$10

☐ B. Plan Y by \$66

☐ D. Plan Y by \$10

5) Two triangles have sides (3, 4, 5) and (3, 4, 5), respectively. Can we conclude they are congruent?

☐ A. No, they are only similar

☐ C. Yes, by SAS

☐ B. Yes, by SSS

☐ D. No, we need angle measures



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6) A bank account starts with a credit of \$50. After a debit of \$50, what is the account balance?

- ☐ A. \$100 (adds both amounts instead of subtracting) ☐ C. -\$50 (records only the debit)
☐ B. \$50 (ignores the debit) ☐ D. \$0 (correct; opposites sum to zero)

7) Simplify: $-3x + 5x - x + 2x$

- ☐ A. $3x$ ☐ C. $9x$
☐ B. $5x$ ☐ D. $2x$

8) A mountain climber is at 200 meters above sea level. She descends 350 meters. At what elevation is she now? Write your answer as an integer.

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

- ☐ A. 7 ☐ C. 17
☐ B. -7 ☐ D. -17

10) Which expression is NOT equivalent to $8(x + 2)$?

- ☐ A. $8x + 16$ ☐ C. $8x + 2$
☐ B. $4(2x + 4)$ ☐ D. $2(4x + 8)$



- 11) A car travels at a constant speed passing through the origin and the point (2, 140) on a distance-time graph (where x = hours and y = miles). What is the unit rate in miles per hour?

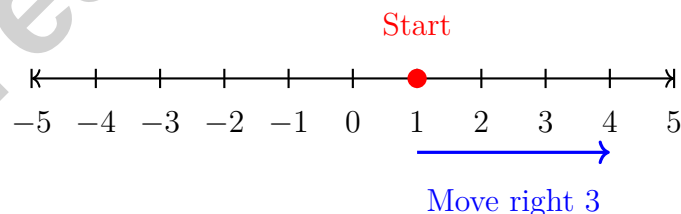
- 12) A cube's surface area is 294 cm^2 . A second cube has edge length twice as long. What is the surface area of the larger cube?

- ☐ A. 588 cm^2
☐ C. 1764 cm^2
☐ B. 1176 cm^2
☐ D. 2352 cm^2

- 13) A spinner with 4 equal sections (Red, Blue, Green, Yellow) is spun twice to simulate a compound event. If "success" is defined as "the first spin is Red and the second spin is Blue," how many outcomes in the sample space represent a success?

- ☐ A. 1
 ☐ C. 4
☐ B. 2
 ☐ D. 8

- 14) The number line shows a move. Which operation does it represent?



- ☐ A. $1 - 3$
☐ C. $1 + (-3)$
☐ B. $1 - (-4)$
☐ D. $1 + 3$



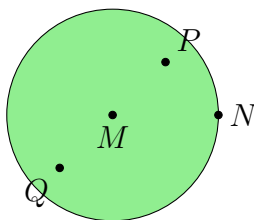
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- 1) A recipe calls for 2.5 cups of flour. If you make $\frac{3}{5}$ of the recipe, how much flour do you use?
- ☐ A. 1.5 cups ☐ C. 2.5 cups
☐ B. 1.25 cups ☐ D. 4.17 cups
- 2) A circle has a radius of 4 centimeters. What is its area? Use $\pi \approx 3.14$.
- ☐ A. 12.56 cm² ☐ C. 37.68 cm²
☐ B. 25.12 cm² ☐ D. 50.24 cm²
- 3) Two histograms compare the quiz scores of morning and afternoon classes. The morning class shows bars centered around 85–90, while the afternoon class shows bars centered around 75–80. What does this suggest?
- ☐ A. Morning students scored higher on average ☐ C. Both classes performed equally well
☐ B. Afternoon students are smarter ☐ D. Quiz difficulty was higher for morning students
- 4) A composite figure is formed by a square (8 m × 8 m) with a right triangle (legs 8 m and 3 m) attached to one side. What is the total area?
- ☐ A. 64 m² ☐ C. 88 m²
☐ B. 76 m² ☐ D. 100 m²
- 5) A triangular prism has volume 126 cubic inches. If the triangular base has area 18 in², what is the height of the prism?
- ☐ A. 7 in ☐ C. 9 in
☐ B. 8 in ☐ D. 144 in



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6) Which point is the center of the circle?


☐ A. N
☐ C. P
☐ B. M
☐ D. Q

7) Simplify: $7m^2 + 3n + 2m^2 - n + 4$

☐ A. $16m^2n + 4$
☐ C. $16m^2 + 2n$
☐ B. $9m^2 + 2n + 4$
☐ D. $5m^2 + 2n + 4$

h_1	$8x$	12
h_2	16	24
	w_1	w_2

8)

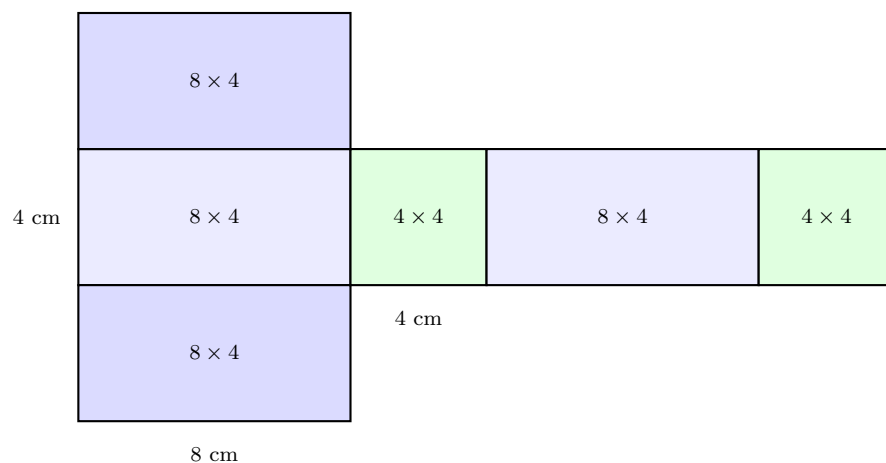
An area model has four rectangular sections with areas $8x$, 12 , 16 , and 24 . What is the GCF of all four terms?

☐ A. 2
☐ C. 8
☐ B. 4
☐ D. 12


- 1) A quadrilateral $ABCD$ has vertices $A(0, 0)$, $B(4, 0)$, $C(4, 3)$, and $D(0, 3)$. If the quadrilateral is translated by $(-2, 1)$, which of the following is the new location of vertex C ?
- ☐ A. $(2, 4)$ ☐ C. $(6, 2)$
☐ B. $(2, 2)$ ☐ D. $(4, 3)$
- 2) An emergency fund is money set aside for unexpected expenses. Financial advisors recommend saving 3 to 6 months of living expenses. If your monthly expenses are \$2 000, what is the lower end of the recommended emergency fund?
- ☐ A. \$3 000 ☐ C. \$8 000
☐ B. \$12 000 ☐ D. \$6 000
- 3) A student's test score improved from 72 to 90. What is the percent increase in the score?
- ☐ A. 18% ☐ C. 25%
☐ B. 20% ☐ D. 80%



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4)

The net folds into a rectangular prism with dimensions $8\text{ cm} \times 4\text{ cm} \times 4\text{ cm}$. What is its surface area?

☐ A. 128 cm^2

☐ C. 160 cm^2

☐ B. 144 cm^2

☐ D. 192 cm^2

5) Simplify $m^6 \cdot m^3 \div m^4$. What is the exponent on m ?

6) A sports league charges a \$100 registration fee and \$50 per game played. If a team's total bill is \$400, write an equation to represent the number of games g played, solve for g , and verify your answer.



Maine Through Year Assessment 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 Maine Through Year Assessment practice test.



Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.NS.1-7.NS.3) $7 \times 7 = 49$, so $\sqrt{49} = 7$.
- 2) **Choice B is correct.** (7.NS.2) Negative times negative always yields a positive product.
- 3) **Choice D is correct.** (7.RP.3) Daily rate for 5 days: $40 \times 5 = \$200$. Insurance premium: $0.15 \times 200 = \$30$. Total: $200 + 30 = \$230$.
- 4) **Choice A is correct.** (7.RP.3) Plan X: $1100(1.04)^2 = 1189.76$. Plan Y: $1000(1.06)^2 = 1123.60$. Difference: $1189.76 - 1123.60 = 66.16 \approx 66$.
- 5) **Choice B is correct.** (7.G.1-7.G.5) Both triangles have identical side lengths: 3, 4, and 5. The SSS (Side-Side-Side) condition guarantees congruence.
- 6) **Choice D is correct.** (7.NS.1-7.NS.3) The credit of +50 and debit of -50 are opposites and sum to zero. This demonstrates the additive inverse property: $50 + (-50) = 0$.
- 7) **Choice A is correct.** (7.EE.1) Combine: $(-3 + 5 - 1 + 2)x = 3x$.
- 8) **The correct answer is -150.** (7.NS.1-7.NS.3) The elevation change is $200 - 350 = -150$. She is now 150 meters below sea level.
- 9) **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.
- 10) **Choice C is correct.** (7.EE.1-7.EE.2) Expand $8(x + 2) = 8x + 16$. Check others: A) $8x + 16$ ✓, B) $4(2x + 4) = 8x + 16$ ✓, D) $2(4x + 8) = 8x + 16$ ✓. Only C) $8x + 2 \neq 8x + 16$ is not equivalent.
- 11) **The correct answer is 70.** (7.RP.1-7.RP.3) The unit rate is $140 \div 2 = 70$ miles per hour. This is the car's constant speed.
- 12) **Choice B is correct.** (7.G.4-7.G.6) First cube: $6s_1^2 = 294 \Rightarrow s_1^2 = 49 \Rightarrow s_1 = 7$ cm. Second cube: $s_2 = 2 \times 7 = 14$ cm. $SA = 6(14)^2 = 6(196) = 1176$ cm².
- 13) **Choice A is correct.** (7.SP.5-7.SP.8) The sample space has $4 \times 4 = 16$ equally likely outcomes. Only one outcome satisfies the condition: "first spin Red, second spin Blue."
- 14) **Choice D is correct.** (7.NS.1-7.NS.3) Starting at 1 and moving right 3 units represents adding 3, so $1 + 3 = 4$.
- 15) **Choice C is correct.** (7.NS.2d) Divide $5 \div 9 = 0.555\ldots = 0.\bar{5}$. The denominator $9 = 3^2$ produces a repeating decimal.
- 16) **Choice A is correct.** (7.NS.1-7.NS.3) $9.08 \times 10^5 = 9.08 \times 100,000 = 908,000$.
- 17) **Choice A is correct.** (7.EE.1-7.EE.2) Substitute: $5 - 3(4 - 2) = 5 - 3(2) = 5 - 6 = -1$.
- 18) **The correct answer is A,B.** (7.RP.1-7.RP.3) A and B. Each point satisfies $y/x = 3$, so the table is proportional with constant ratio 3 (A) and is modeled by $y = 3x$ (B). C is false: the constant of proportionality is 3, not $\frac{1}{3}$. D is false: $y = 3x - 1$ would give $y = 2$ at $x = 1$, not 3.
- 19) **Choice A is correct.** (7.EE.1-7.EE.2) Multiply exponents: $(d^2)^5 = d^{2 \times 5} = d^{10}$.
- 20) **Choice B is correct.** (7.EE.3-7.EE.4) Add 3: $5y = 25$. Divide by 5: $y = 5$.
- 21) **Choice B is correct.** (7.EE.4b) Divide both sides by 4: $x < \frac{20}{4} = 5$.
- 22) **Choice B is correct.** (7.G.1-7.G.5) The side length of the square cross-section is half the length of a face diagonal. Since a face diagonal of a cube with edge length a is $a\sqrt{2}$, the side length is $\frac{a\sqrt{2}}{2}$. For $a = 6$, $\frac{6\sqrt{2}}{2} = 3\sqrt{2}$ cm.
- 23) **Choice C is correct.** (7.G.1-7.G.5) Supplementary angles sum to 180° : $180 - 29 = 151^\circ$.
- 24) **Choice B is correct.** (7.G.4-7.G.6) $C = 2\pi r = 2 \times 3.14 \times 30 = 188.4$ m.
- 25) **The correct answer is 62.5%.** (7.RP.3) Move the decimal two places right: $0.625 = 62.5\%$.
- 26) **Choice C is correct.** (7.G.4-7.G.6) Original: $V = \pi r^2 h$. New: $V' = \pi(2r)^2(2h) = 8\pi r^2 h = 8V$.
- 27) **Choice B is correct.** (7.SP.1-7.SP.4) By surveying only lunch-buyers that day, she misses students who bring lunch from home. This creates a non-response bias and an unrepresentative sample.
- 28) **Choice A is correct.** (7.SP.1-7.SP.4) Both have the same mean (\$1200), but Morning Brew has a smaller MAD (0.8 vs. 2.1), indicating more consistent daily revenue.
- 29) **Choice B is correct.** (7.SP.1-7.SP.4) The intervals 60–65 and 65–70 have frequencies 14 and 16, totaling 30 out of 40 students (75%), so most are in that range.



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Hi, Future Algebra Thinker!

◇ Grade 7 practice prepares you for the next math steps. Expressions, equations, proportional relationships, and graphs are all part of that bridge. This broad and demanding book gave you seven strong Grade 7 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 7 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

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