

# 5

# Delaware DeSSA

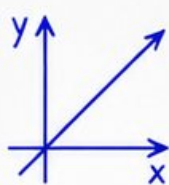
GRADE

# 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



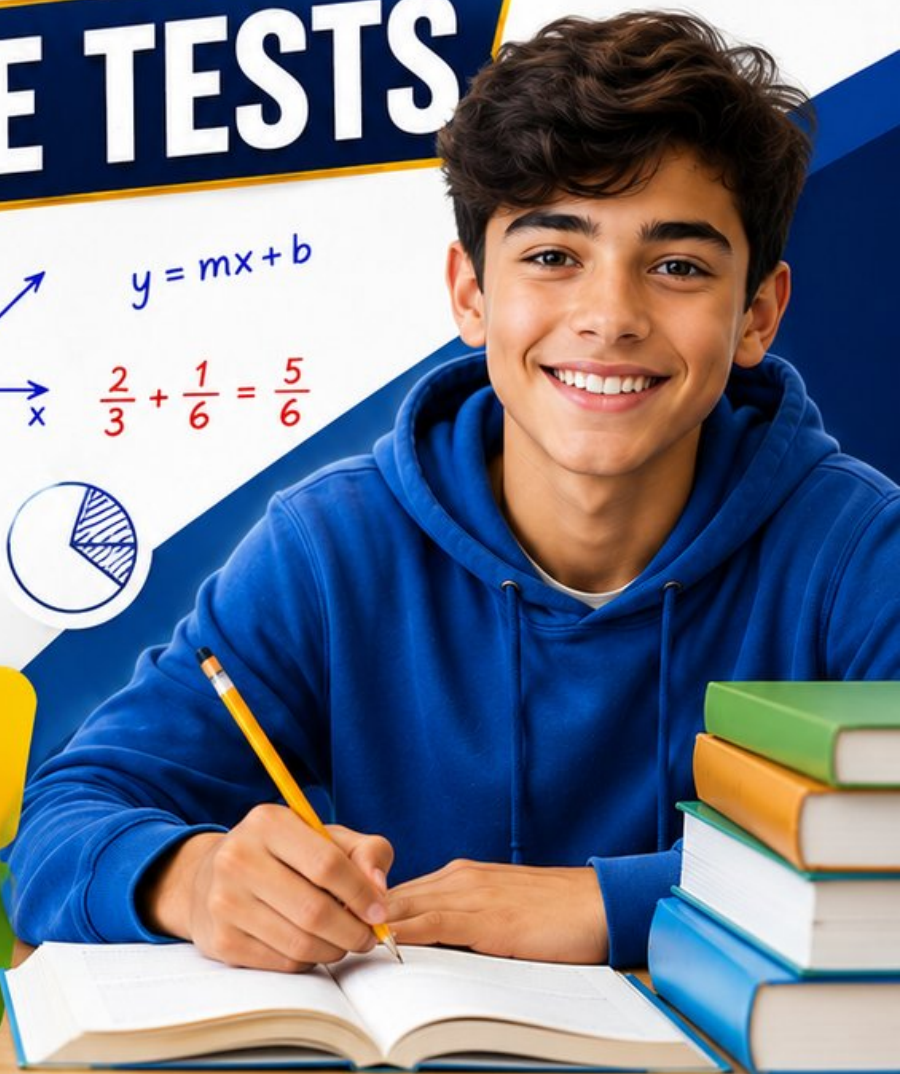
Strengthen  
Math Skills



Detailed Answers  
& Explanations

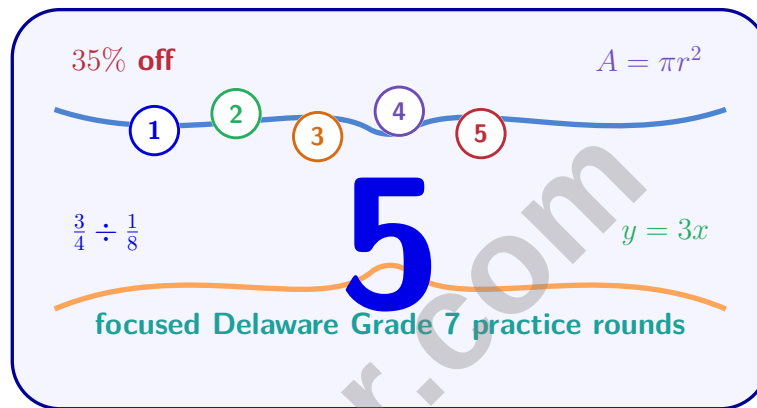


Improve Test  
Performance



# 5 Delaware Smarter Balanced Grade 7 Math Practice Tests

*Grade 7 Standards Practice with Clear Review and Answer Support*



Five complete 40-question Grade 7 Smarter Balanced 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, Delaware Grade 7 Problem Solver!

Five focused rounds for sharper Smarter Balanced math thinking

This book gives you five full Grade 7 Smarter Balanced 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 Delaware 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 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.

**Delaware 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 Smarter Balanced 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.



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For more practice  
& answers

# Table of Contents

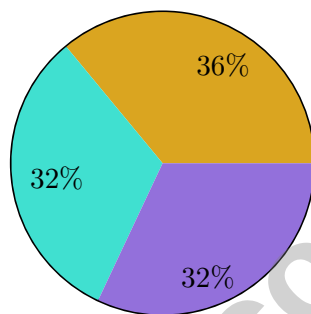
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- 1) A swimmer is currently 4 kg below their target weight. If they gain 0.5 kg per week, how many weeks  $w$  must pass to reach or exceed their target weight?
- ☐ A.  $0.5w - 4 \geq 0$  ☐ C.  $w \geq 8$   
☐ B.  $0.5w \geq 4$  ☐ D.  $w \leq 8$
- 2) A garden is 15 feet long and 10 feet wide. A scale drawing uses 1 inch = 5 feet. What are the dimensions on the drawing?
- ☐ A. 1.5 inches  $\times$  1 inch ☐ C. 3 inches  $\times$  2 inches  
☐ B. 5 inches  $\times$  4 inches ☐ D. 15 inches  $\times$  10 inches
- 3) What is  $-8 + 5$ ?
- ☐ A.  $-13$  ☐ C. 3  
☐ B. 13 ☐ D.  $-3$
- 4) A scuba diver is at a depth of  $-45$  feet (below sea level). She ascends 15 feet. What is her new depth?
- ☐ A.  $-60$  feet ☐ C. 30 feet  
☐ B.  $-30$  feet ☐ D. 60 feet
- 5) A coffee shop buys coffee beans for \$8 per pound and marks them up by \$4 per pound. What is the percent markup?
- ☐ A. 75% ☐ C. 25%  
☐ B. 100% ☐ D. 50%



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- 6) A lemonade stand charges \$0.75 per cup. What is the constant of proportionality for revenue per cup?



7)

The circle graph shows subscription type preferences. Gold is premium (36%), turquoise is standard (32%), and purple is basic (32%). If 2500 customers subscribe, how many have premium subscriptions?

- |                                 |                                  |
|---------------------------------|----------------------------------|
| <input type="checkbox"/> A. 700 | <input type="checkbox"/> C. 900  |
| <input type="checkbox"/> B. 800 | <input type="checkbox"/> D. 1000 |
- 8) If  $y$  is proportional to  $x$ , and a point is  $(2, 6)$ , what is the constant of proportionality?
- |                                               |                                     |
|-----------------------------------------------|-------------------------------------|
| <input type="checkbox"/> A. $k = \frac{1}{3}$ | <input type="checkbox"/> C. $k = 6$ |
| <input type="checkbox"/> B. $k = 2$           | <input type="checkbox"/> D. $k = 3$ |



9) A chemist mixes  $\frac{3}{8}$  liter of solution A and  $\frac{5}{8}$  liter of solution B. What is the total volume?

☐ A.  $\frac{8}{16}$  liters

☐ C.  $1\frac{1}{8}$  liters

☐ B. 1 liter

☐ D.  $\frac{2}{8}$  liters

10) A jacket on sale costs \$51. The original price was \$60. What percent discount was applied?

11) Which expression represents “the quotient of  $p$  and 4, plus 5”?

☐ A.  $\frac{p}{4} + 5$

☐ C.  $4p + 5$

☐ B.  $\frac{p+5}{4}$

☐ D.  $p + \frac{5}{4}$

12) Internet Plan A offers  $\frac{3}{4}$  gigabyte for \$15. Plan B offers  $\frac{1}{2}$  gigabyte for \$10. Which plan is the better value?

☐ A. Plan A at \$20/GB

☐ C. Plan A at \$15/GB

☐ B. Plan B at \$20/GB

☐ D. They are equally good

13) A table shows a proportional relationship: when  $x = 3$ ,  $y = 21$ ; when  $x = 5$ ,  $y = 35$ ; when  $x = 7$ ,  $y = 49$ . What is the unit rate?

☐ A. 3

☐ C. 7

☐ B. 5

☐ D. 21



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1) Solve:  $6x - 15 = 3$

☐ A.  $x = 2$

☐ B.  $x = 3$

☐ C.  $x = 4$

☐ D.  $x = 5$

2) A soccer team won 75% of their 20 games. How many games did they win?

☐ A. 5

☐ B. 12

☐ C. 15

☐ D. 18

3) The table shows the relationship between gallons of gas and cost.

| Gallons | Cost (\$) |
|---------|-----------|
| 3       | 12        |
| 5       | 20        |
| 8       | 32        |

Which equation represents this relationship?

☐ A.  $C = 3g + 1$

☐ B.  $C = \frac{g}{4}$

☐ C.  $C = g + 9$

☐ D.  $C = 4g$

4) A car's fuel consumption is 25 miles per gallon. If the relationship is expressed as  $d = kg$  where  $d$  is distance (miles) and  $g$  is gallons used, what is the constant of proportionality?

☐ A.  $k = 50$  miles per half-gallon

☐ B.  $k = \frac{1}{25}$  gallons per mile

☐ C.  $k = 0.04$

☐ D.  $k = 25$  miles per gallon



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- 5) 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

- 6) Simplify  $12x - 8x + 5y - 2y - x$ , then evaluate when  $x = 1$  and  $y = 2$ .

- 7) A cube has edge length 3 cm. What is its surface area?

☐ A.  $9 \text{ cm}^2$  ☐ C.  $27 \text{ cm}^2$   
☐ B.  $18 \text{ cm}^2$  ☐ D.  $54 \text{ cm}^2$

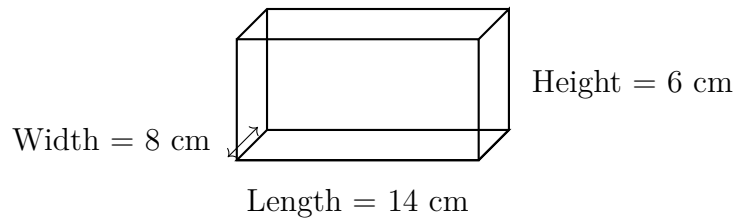
- 8) Solve:  $-3x + 10 = 1$

☐ A.  $x = -3$  ☐ C.  $x = 3$   
☐ B.  $x = 1$  ☐ D.  $x = 9$

- 9) Solve for  $x$ :  $-2(x - 4) = 6$

☐ A.  $x = 1$  ☐ C.  $x = 3$   
☐ B.  $x = 2$  ☐ D.  $x = 4$





1)

A rectangular prism has the dimensions shown. What is its volume?

☐ A.  $28 \text{ cm}^3$

☐ C.  $504 \text{ cm}^3$

☐ B.  $224 \text{ cm}^3$

☐ D.  $672 \text{ cm}^3$

2) Expand  $\frac{1}{2}(6y - 8)$ , then evaluate when  $y = 4$ .

3) Solve and identify the key step:  $-5x \geq 20$

Original:  $-5x \geq 20$

Divide both sides by  $-5$ .

**FLIP the inequality:  $\geq$  becomes  $\leq$**

Result:  $x \leq -4$

☐ A.  $x \leq -4$

☐ C.  $x < 4$

☐ B.  $x \geq -4$

☐ D.  $x = -4$



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& answers

4) What is the solution to  $\frac{3}{4}x = 12$ ? Use a reciprocal to solve and verify.

☐ A.  $x = 9$

☐ C.  $x = 16$

☐ B.  $x = 12$

☐ D.  $x = 36$

Scale 1 cm : 2 m



5)

What is the perimeter of the actual rectangle?

☐ A. 16 m

☐ C. 64 m

☐ B. 32 m

☐ D. 128 m

6) A bakery charges \$3 per cookie plus a \$4 delivery fee. If your total bill is \$19, how many cookies did you order?

7) A student's savings account grows by a percentage each month (not a fixed dollar amount). Month 1: \$100, Month 2: \$110, Month 3: \$121. The growth rate each month is approximately:

☐ A. 5%

☐ C. 15%

☐ B. 20%

☐ D. 10%



## Delaware Smarter Balanced 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 Delaware Smarter Balanced practice test.**



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## Practice Test Answers and Explanations

### Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (7.EE.4b) The swimmer must make up a 4 kg deficit at 0.5 kg/week:  $0.5w \geq 4$ . Divide by 0.5:  $w \geq 8$  weeks.
- 2) **Choice C is correct.** (7.RP.1-7.RP.3) Divide actual dimensions by scale:  $15 \div 5 = 3$  inches;  $10 \div 5 = 2$  inches.
- 3) **Choice D is correct.** (7.NS.1b) Start at  $-8$  on a number line and move 5 units right:  $-8 + 5 = -3$ .
- 4) **Choice B is correct.** (7.NS.1-7.NS.3) Ascending (moving up) is the opposite of depth change. New depth:  $-45 - (-15) = -45 + 15 = -30$  feet.
- 5) **Choice D is correct.** (7.RP.3) Markup percent =  $\frac{\text{markup}}{\text{cost}} \times 100 = \frac{4}{8} \times 100 = 50\%$ .
- 6) **The correct answer is 0.75.** (7.RP.1-7.RP.3) Revenue is price per cup times cups sold, so the constant is 0.75.
- 7) **Choice C is correct.** (7.SP.1-7.SP.4)  $36\%$  of 2500 =  $0.36 \times 2500 = 900$  customers.
- 8) **Choice D is correct.** (7.RP.1-7.RP.3) From  $y = kx$ :  $6 = k(2)$ , so  $k = \frac{6}{2} = 3$ .
- 9) **Choice B is correct.** (7.NS.1-7.NS.3) Total volume =  $\frac{3}{8} + \frac{5}{8} = \frac{8}{8} = 1$  liter.
- 10) **The correct answer is 15%.** (7.RP.3) The discount amount is  $60 - 51 = 9$  dollars. Percent discount:  $\frac{9}{60} = 0.15 = 15\%$ .
- 11) **Choice A is correct.** (7.EE.1-7.EE.2) Quotient of  $p$  and 4 is  $\frac{p}{4}$ . Plus 5 gives  $\frac{p}{4} + 5$ .
- 12) **Choice D is correct.** (7.RP.1-7.RP.3) Plan A:  $\frac{15}{3/4} = 15 \times \frac{4}{3} = 20$  \$/GB. Plan B:  $\frac{10}{1/2} = 10 \times 2 = 20$  \$/GB. Same rate.
- 13) **Choice C is correct.** (7.RP.1-7.RP.3) The unit rate is found by dividing any  $y$  by its corresponding  $x$ :  $21 \div 3 = 7$ ;  $35 \div 5 = 7$ ;  $49 \div 7 = 7$ . Unit rate is 7.
- 14) **Choice C is correct.** (7.RP.3) Using the proportion  $\frac{28}{100} = \frac{x}{400}$ , cross-multiply:  $x = 112$  people prefer pizza.
- 15) **Choice D is correct.** (7.RP.3) Difference =  $30\% - 20\% = 10\%$ .
- 16) **Choice B is correct.** (7.NS.1-7.NS.3) Subtraction can be rewritten as adding the opposite:  $8 - 3 = 8 + (-3) = 5$ .
- 17) **Choice A is correct.** (7.NS.1-7.NS.3) (A) Neg  $\div$  neg = pos:  $(-18) \div (-9) = 2$ . (B) Neg  $\div$  pos = neg. (C) Pos  $\div$  neg = neg. (D) Neg  $\div$  pos = neg.
- 18) **Choice A is correct.** (7.NS.2d) Divide  $5 \div 6 = 0.8333 \dots = 0.8\bar{3}$ . The denominator includes 3, causing a repeating pattern.
- 19) **Choice B is correct.** (7.NS.1-7.NS.3)  $\frac{1}{8} \times 480 = \frac{480}{8} = 60$  gallons lost.
- 20) **The correct answer is \$2500.** (7.RP.3)  $500 = P \times 0.05 \times 4 \Rightarrow 500 = 0.2P \Rightarrow P = \$2500$ .
- 21) **The correct answer is A, C.** (7.RP.1-7.RP.3) From the table,  $k = 14/2 = 7$ , so A is true and the equation is  $y = 7x$  (C is true). B is false:  $k = 7$ , not 2.8. D is false: when  $x = 10$ ,  $y = 7 \cdot 10 = 70$ , not 68.
- 22) **The correct answer is 13%.** (7.RP.3) Percent error =  $\frac{|2.8 - 3.2|}{3.2} \times 100\% = \frac{0.4}{3.2} \times 100\% = 12.5\%$ , rounds to 13%.
- 23) **Choice C is correct.** (7.NS.1-7.NS.3)  $1.5 \times 10^6 = 1.5 \times 1,000,000 = 1,500,000$ .
- 24) **Choice B is correct.** (7.NS.1-7.NS.3) If area = 25, then  $s^2 = 25$ , so  $s = \sqrt{25} = 5$ .
- 25) **Choice A is correct.** (7.SP.3) Histogram centers show average. North Side (15–25) shifts left of South Side (25–35). The difference in centers is approximately 10 plants (midpoints: 20 vs. 30).
- 26) **Choice C is correct.** (7.SP.5-7.SP.8)  $P(\text{section 1}) = \frac{1}{10}$ , so  $P(\text{not section 1}) = 1 - \frac{1}{10} = \frac{9}{10}$ .
- 27) **Choice D is correct.** (7.RP.3) Session cost =  $100 \times 3 = \$300$ . Editing fee =  $0.20 \times 300 = \$60$ . Total =  $300 + 60 = \$360$ .
- 28) **Choice C is correct.** (7.NS.2) A:  $(-6) \times 3 = -18 < 0$  (false). B:  $(-4) \times (-4) = 16 > 0$  (false). C: Both equal  $-10$  (true). D:  $(-1) \times 7 = -7$  and  $(-1) \times 6 = -6$ ;  $-7 \not< -6$  (false).
- 29) **Choice A is correct.** (7.SP.1-7.SP.4) For  $n = 20$  (even), median is between positions  $n/2 = 10$  and  $n/2 + 1 = 11$ .
- 30) **Choice A is correct.** (7.G.4-7.G.6) Start with the large rectangle:  $20 \times 15 = 300$  yd<sup>2</sup>. Subtract the two removed corner sections:  $2 \times (4 \times 3) = 24$  yd<sup>2</sup>. Remaining area:  $300 - 24 = 276$  yd<sup>2</sup>.
- 31) **Choice D is correct.** (7.RP.3) The compound interest formula after  $t$  years is  $A = P(1+r)^t$ . For  $t = 2$ :  $A = P(1+r)^2$ .
- 32) **Choice C is correct.** (7.RP.1-7.RP.3) Proportion:  $\frac{3}{5} = \frac{x}{1000}$ . Cross multiply:  $5x = 3000$ , so  $x = 600$ .



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& answers

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## 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](mailto: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.

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**2** Online Practice Tests

 Detailed Answers & Explanations



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