

# Pennsylvania PSSA Grade 7 Math Quizzes

*Quick Topic Assessments with Answer Key*

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QUICK QUIZZES FOR EVERY TOPIC

# Grade 7 Math Quizzes

Topic Quizzes • Chapter Reviews • Answer Key

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*Quick, focused quizzes are one of the best ways to find out what you really know — and what you still need to work on.*

*This book has a short quiz for every Grade 7 math topic. Each one takes about 10–15 minutes and covers the most important skills for that section. Take a quiz, score it, and see exactly where you stand.*

*Use it after studying a topic, the night before a test, or anytime you want a fast check-in on your math skills.*



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*10–15 minutes  
per quiz*



## Score It

*Check every answer  
in the key*



## Review & Retry

*Study what you missed  
then quiz again*

CHAPTER

1

# Ratios and Proportional Relationships

## ★ What's Inside ★

Quiz 1: Unit Rates with Fractions ..... 3



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 CHAPTER 1

# Quiz 1

## Unit Rates with Fractions

 Name: \_\_\_\_\_

 Date: \_\_\_\_\_

 Score: \_\_\_\_\_ / 8

- 1 A jogger runs  $\frac{3}{4}$  of a mile in  $\frac{1}{2}$  hour. What is the jogger's **unit rate** in miles per hour?

$$\begin{array}{c} \boxed{\phantom{0}} \boxed{\phantom{0}} \boxed{\phantom{0}} \boxed{\phantom{0}} \\ \div \\ \boxed{\phantom{0}} \boxed{\phantom{0}} \\ = \underline{\hspace{2cm}} \text{ mph} \end{array}$$

- 2 A recipe uses  $\frac{2}{3}$  cup of cocoa for  $\frac{1}{4}$  batch. How much cocoa is needed for **one full batch**?

A.  $\frac{1}{6}$  cup

B.  $\frac{8}{3}$  cups

C.  $\frac{2}{12}$  cup

D.  $2\frac{2}{3}$  cups

- 3 Which painter is faster? Write  $>$ ,  $<$ , or  $=$  in the circle.

Maya:  $\frac{2}{5}$  room in  $\frac{1}{3}$  hr

Leo:  $\frac{3}{4}$  room in  $\frac{1}{2}$  hr

Maya's rate



Leo's rate

- 4 Complete the table. Each row shows the **same rate**.

Gallons	$\frac{1}{2}$	1
Miles	$\frac{5}{6}$	_____



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Unit rate (miles per gallon): \_\_\_\_\_

5 True or False: A printer that uses  $\frac{3}{8}$  of a cartridge for  $\frac{1}{4}$  ream of paper uses **more than** 1 full cartridge per ream.

True       False

6 A snail crawls  $\frac{5}{8}$  meter in  $\frac{3}{4}$  hour. A beetle crawls  $\frac{7}{10}$  meter in  $\frac{4}{5}$  hour. Which creature is faster, and by how much?



Faster creature & difference: \_\_\_\_\_

\_\_\_\_\_

### Bonus Challenge

This is a bonus question for extra credit. Give it your best attempt.

7 A mystery smoothie recipe uses  $\frac{a}{b}$  cups of fruit per  $\frac{1}{3}$  cup of yogurt. The unit rate is exactly  $2\frac{1}{4}$  cups of fruit per cup of yogurt. What fraction  $\frac{a}{b}$  is in the recipe? Show your work.

Show your work

### Score Summary

I got \_\_\_\_\_ out of \_\_\_\_\_ correct.



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CHAPTER

2

# Operations with Rational Numbers

## ★ What's Inside ★

Quiz 2: Integers and Their Opposites ..... 7



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 CHAPTER 3

## Quiz 2

### Integers and Their Opposites

 Name: \_\_\_\_\_

 Date: \_\_\_\_\_

 Score: \_\_\_\_\_ / 8

- 1 Point  $A$  is shown on the number line below. What integer does  $A$  represent, and what is its **opposite**?



$A =$ : \_\_\_\_\_

Opposite =: \_\_\_\_\_

- 2 Complete the table.

<b>Number</b>	-7	_____	0
<b>Opposite</b>	_____	-4	_____
<b>Absolute Value</b>	_____	4	_____

- 3 Which pair of integers has a sum of 0?

A. 5 and 5

B. -3 and 3

C. -7 and -7

D. 4 and -3

- 4 Compare. Write  $>$ ,  $<$ , or  $=$  in the circle.

$|-9|$



$|6|$



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- 5 A scuba diver descends 12 feet below sea level, then ascends 12 feet. Write each action as an integer and find the final position.

Final position: \_\_\_\_\_

- 6 True or False:  $|-5| = -5$ .

True       False

### Bonus Challenge

This is a bonus question for extra credit. Give it your best attempt.

- 7 List **all** integers  $n$  where  $|n| \leq 3$ . Then find their sum.

 Show your work

### Score Summary

I got \_\_\_\_\_ out of \_\_\_\_\_ correct.



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# *Answer Key & Explanations*



## Answer Key

First try each quiz on your own, then check your work here.

### Chapter 1

#### Quiz 1: Unit Rates with Fractions

1  $1\frac{1}{2}$  mph

2 D ( $2\frac{2}{3}$  cups)

3  $<$  (Maya is slower)

4  $1\frac{2}{3}$  mi; unit rate =  $1\frac{2}{3}$  mpg

5 True

6 Beetle; faster by  $\frac{1}{24}$  m/hr

7  $\frac{3}{4}$

#### Explanations

1 Divide distance by time:  $\frac{3}{4} \div \frac{1}{2}$ . Keep-Change-Flip:  $\frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$  mph. Check: in  $\frac{1}{2}$  hr at  $1\frac{1}{2}$  mph you go  $\frac{3}{2} \times \frac{1}{2} = \frac{3}{4}$  mi. ✓

2 Divide cocoa by batches:  $\frac{2}{3} \div \frac{1}{4} = \frac{2}{3} \times \frac{4}{1} = \frac{8}{3} = 2\frac{2}{3}$  cups. Choice B shows the improper form, but D is the simplified mixed number. Common mistake: multiplying instead of dividing gives  $\frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$  (choice A).

3 Maya:  $\frac{2}{5} \div \frac{1}{3} = \frac{2}{5} \times 3 = \frac{6}{5} = 1\frac{1}{5}$  rooms/hr. Leo:  $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times 2 = \frac{6}{4} = 1\frac{1}{2}$  rooms/hr. Since  $1\frac{1}{5} < 1\frac{1}{2}$ , Maya is slower. Common mistake: comparing the fractions without finding unit rates.

4 Find the unit rate:  $\frac{5}{6} \div \frac{1}{2} = \frac{5}{6} \times 2 = \frac{10}{6} = \frac{5}{3} = 1\frac{2}{3}$  miles per gallon. For 1 gallon the answer is the unit rate itself:  $1\frac{2}{3}$  miles. Check:  $\frac{5}{3} \times \frac{1}{2} = \frac{5}{6}$ . ✓



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5 Find the unit rate:  $\frac{3}{8} \div \frac{1}{4} = \frac{3}{8} \times 4 = \frac{12}{8} = \frac{3}{2} = 1\frac{1}{2}$  cartridges per ream. Since  $1\frac{1}{2} > 1$ , the statement is true. Common mistake: dividing  $\frac{1}{4} \div \frac{3}{8}$  (wrong order) gives  $\frac{2}{3}$ , which would incorrectly suggest "False."

6 Snail:  $\frac{5}{8} \div \frac{3}{4} = \frac{5}{8} \times \frac{4}{3} = \frac{20}{24} = \frac{5}{6}$  m/hr. Beetle:  $\frac{7}{10} \div \frac{4}{5} = \frac{7}{10} \times \frac{5}{4} = \frac{35}{40} = \frac{7}{8}$  m/hr. Difference:  $\frac{7}{8} - \frac{5}{6} = \frac{21}{24} - \frac{20}{24} = \frac{1}{24}$  m/hr. The beetle is faster by  $\frac{1}{24}$  m/hr. ✓

7 Work backward: unit rate =  $\frac{a}{b} \div \frac{1}{3}$ , so  $\frac{a}{b} = 2\frac{1}{4} \times \frac{1}{3} = \frac{9}{4} \times \frac{1}{3} = \frac{9}{12} = \frac{3}{4}$ . Check:  $\frac{3}{4} \div \frac{1}{3} = \frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$ . ✓

## Chapter 2

### Quiz 2: Integers and Their Opposites

1  $A = -4$ ; Opposite = 4

2 7, 7; 4; 0, 0

3  $B (-3 \text{ and } 3)$

4  $>$

5 0 (sea level)

6 False

7 Integers:  $-3, -2, -1, 0, 1, 2, 3$ ; Sum = 0

### Explanations

1 Point  $A$  is at  $-4$  on the number line. The opposite of  $-4$  is 4 because both are 4 units from 0 on opposite sides. Check:  $-4 + 4 = 0$ . ✓

2 The opposite of  $-7$  is 7, and  $|-7| = 7$ . If the opposite is  $-4$ , the number is 4, and  $|4| = 4$ . The opposite of 0 is 0, and  $|0| = 0$ . Zero is its own opposite.

3 A number and its opposite always sum to 0.  $-3 + 3 = 0$  because  $-3$  and 3 are opposites (additive inverses). Common mistake: choosing  $A$  — same number twice is not an opposite pair (unless it's 0).



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4  $|-9| = 9$  and  $|6| = 6$ . Since  $9 > 6$ , we have  $|-9| > |6|$ . Absolute value strips the sign — it only measures distance from 0.

5 Descent:  $-12$  ft. Ascent:  $+12$  ft.  $-12 + 12 = 0$ . The diver is back at sea level because descent and ascent are opposite actions. ✓

6 Absolute value is always non-negative (zero or positive).  $|-5| = 5$ , not  $-5$ . The absolute value measures distance from 0, which is always  $\geq 0$ . Common mistake: keeping the negative sign.

7 The integers with absolute value  $\leq 3$  are  $-3, -2, -1, 0, 1, 2, 3$  (seven integers). Each positive integer pairs with its opposite:  $(-3) + 3 = 0$ ,  $(-2) + 2 = 0$ ,  $(-1) + 1 = 0$ , plus 0. Total: 0. ✓



**Well done checking your answers!**

Keep practicing to strengthen your skills.

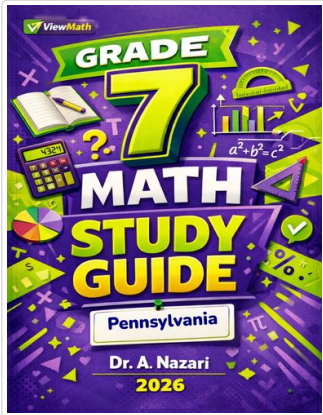


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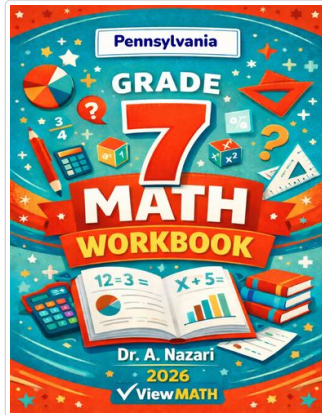
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Study Guide



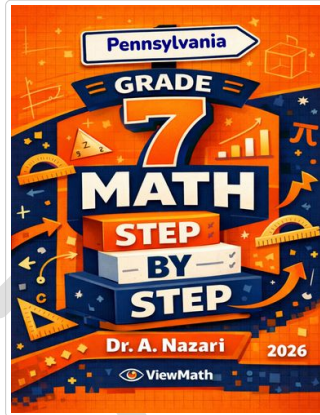
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Workbook



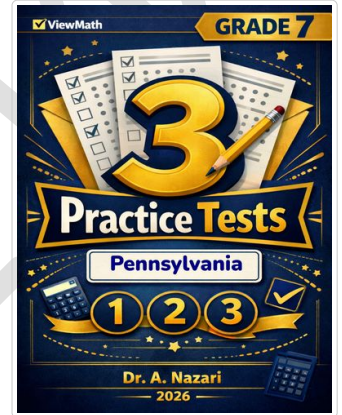
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Step-by-Step



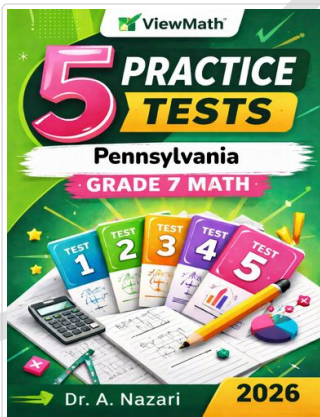
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3 Practice Tests



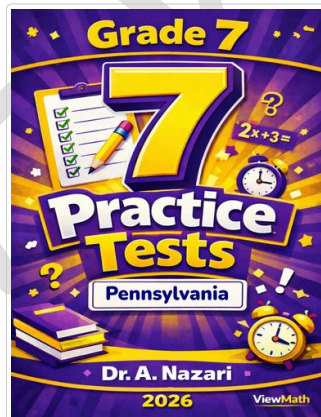
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5 Practice Tests



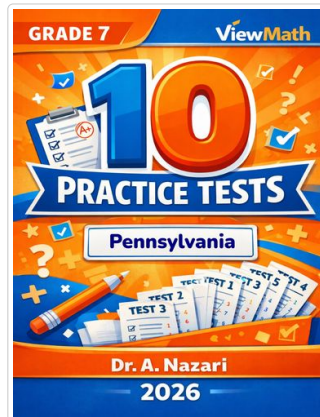
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7 Practice Tests



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10 Practice Tests



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