

Massachusetts MCAS 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

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.



Take the Quiz

*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



PREVIEW



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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?

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

- 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.

| | | | |
|-----------------------|-------|-------|-------|
| Number | -7 | _____ | 0 |
| Opposite | _____ | -4 | _____ |
| Absolute Value | _____ | 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 ≥ 0 . Common mistake: keeping the negative sign.

7 The integers with absolute value ≤ 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.

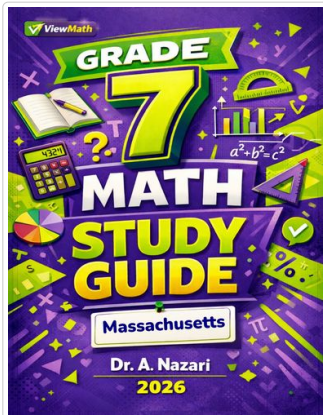


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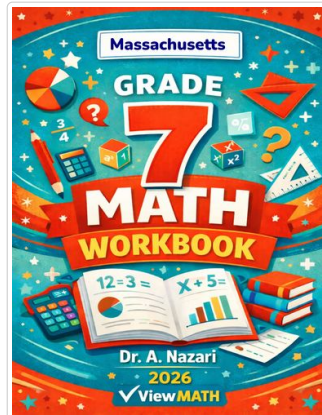
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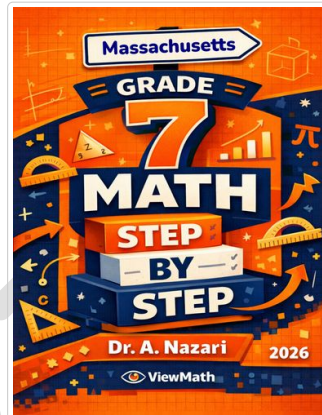
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Workbook



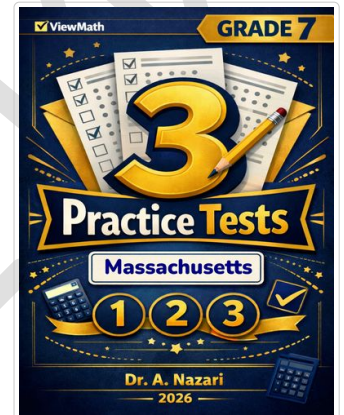
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Step-by-Step



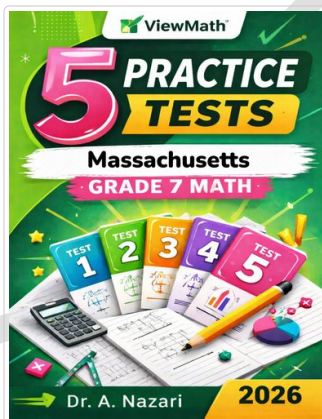
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3 Practice Tests



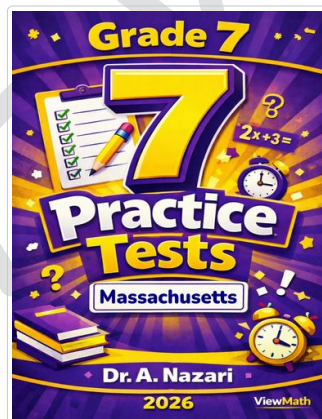
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5 Practice Tests



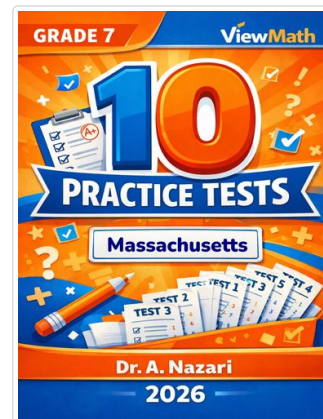
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7 Practice Tests



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10 Practice Tests



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