

Grade 7 - Unit Rates with Fractions - Quiz

Common Core 7.RP.A.1 · maths-pdf.fr/en/

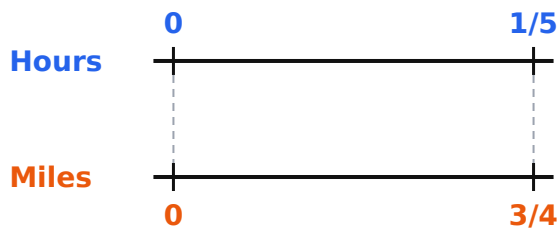
Name: _____ Class: _____ Date: ____/____/____

Answer all 10 multiple-choice questions on unit rates when the quantities are fractions, including speeds, prices, and comparing rates. Pick the single best answer, then read the explanation to see why it is right and which common mistake each wrong choice shows. A score of 8 or more means you are ready for the test.

Grade 7 · Common Core State Standards: **7.RP.A.1**

Questions

Question 1



Ava hikes $\frac{3}{4}$ mile in $\frac{1}{5}$ hour. What is her speed?

- A. $\frac{4}{15}$ mile per hour
- B. $\frac{3}{20}$ mile per hour
- C. $\frac{15}{16}$ mile per hour
- D. $3\frac{3}{4}$ miles per hour

Question 2

A recipe uses $\frac{3}{4}$ cup of milk for $\frac{1}{3}$ batch. Which expression gives the cups of milk per batch?

- A. $\frac{3}{4} \div \frac{1}{3}$
- B. $\frac{1}{3} \div \frac{3}{4}$
- C. $\frac{3}{4} \times \frac{1}{3}$
- D. $\frac{1}{3} - \frac{3}{4}$

Question 3

A 16-ounce bottle costs \$3.04 and a 24-ounce bottle costs \$4.20. Which is the better buy?

- A. 16-ounce bottle at \$0.19 per ounce
- B. 24-ounce bottle at \$0.175 per ounce
- C. 24-ounce bottle at \$0.19 per ounce

D. Both cost the same per ounce

Question 4

Grapes cost \$5 for $2\frac{1}{2}$ pounds. What is the unit price?

- A. \$0.50 per pound
- B. \$7.50 per pound
- C. \$2 per pound
- D. \$12.50 per pound

Question 5

Feet	$\frac{3}{8}$
Minutes	$\frac{1}{2}$

A snail moves $\frac{3}{8}$ foot in $\frac{1}{2}$ minute. How far does it go in

1 minute?

- A. $\frac{3}{16}$ foot
- B. $1\frac{1}{3}$ feet
- C. $\frac{7}{8}$ foot
- D. $\frac{9}{4}$ foot

Question 6

A bus travels 24 miles in $\frac{2}{5}$ hour. How many miles will it travel in 3 hours at the same rate?

- A. 72 miles
- B. 180 miles
- C. 36 miles
- D. 120 miles

Question 7

A printer prints 12 pages in $\frac{1}{5}$ minute. What is its printing rate?

- A. 60 pages per minute
- B. $2\frac{2}{5}$ pages per minute
- C. $\frac{5}{12}$ page per minute
- D. $\frac{1}{60}$ page per minute

Question 8

Option	Miles	Hours
1	$\frac{3}{4}$	$\frac{1}{6}$
2	$\frac{1}{2}$	$\frac{1}{6}$
3	2	$\frac{1}{2}$
4	1	$\frac{1}{4}$

Which option shows the fastest speed?

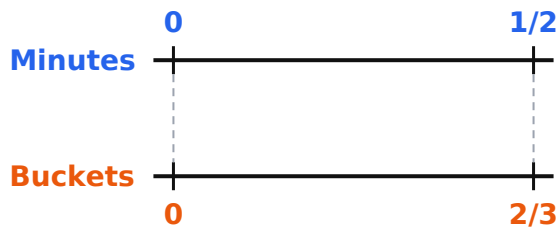
- A. $\frac{1}{2}$ mile in $\frac{1}{6}$ hour
- B. 2 miles in $\frac{1}{2}$ hour
- C. $\frac{3}{4}$ mile in $\frac{1}{6}$ hour
- D. 1 mile in $\frac{1}{4}$ hour

Question 9

If $1\frac{1}{2}$ cups of flour make $\frac{2}{3}$ of a recipe, how much flour makes a whole recipe?

- A. $2\frac{1}{4}$ cups
- B. 1 cup
- C. $1\frac{5}{6}$ cups
- D. 3 cups

Question 10



A faucet fills $\frac{2}{3}$ of a bucket every $\frac{1}{2}$ minute. How long

does it take to fill 1 bucket?

- A. $\frac{4}{3}$ minutes
- B. $\frac{10}{3}$ minute
- C. $\frac{1}{3}$ minute
- D. $1\frac{1}{3}$ minutes

Answers

1. **D** - Divide distance by time: $\frac{3}{4} \div \frac{1}{5} = \frac{3}{4} \times 5 = \frac{15}{4}$. Dividing time by distance gives the flipped rate.
2. **A** - Cups go on top and batches on the bottom, so divide $\frac{3}{4}$ by $\frac{1}{3}$. The reversed division gives batches per cup.
3. **B** - $3.04 \div 16 = 0.19$ and $4.20 \div 24 = 0.175$. A lower unit price is the better buy.
4. **C** - Divide $5 \div 2\frac{1}{2} = 5 \div \frac{5}{2} = 2$. Multiplying 5 by $2\frac{1}{2}$ is a common mistake.
5. **D** - Divide $\frac{3}{8} \div \frac{1}{2} = \frac{3}{8} \times 2 = \frac{3}{4}$. Multiplying by $\frac{1}{2}$ instead gives $\frac{3}{16}$.
6. **B** - The unit rate is $24 \div \frac{2}{5} = 60$ miles per hour, and $60 \times 3 = 180$. Tripling 24 ignores the $\frac{2}{5}$ hour.
7. **A** - Pages per minute is $12 \div \frac{1}{5} = 60$. The value $\frac{1}{60}$ is minutes per page.
8. **C** - The speeds are 4.5, 3, 4, and 4 miles per hour. Compare unit rates, not distances alone.
9. **A** - Divide $\frac{3}{2} \div \frac{2}{3} = \frac{3}{2} \times \frac{3}{2} = \frac{9}{4} = 2\frac{1}{4}$. Multiplying $\frac{3}{2} \times \frac{2}{3}$ gives 1.
10. **B** - The rate is $\frac{2}{3} \div \frac{1}{2} = \frac{4}{3}$ buckets per minute, so one bucket takes the reciprocal, $\frac{3}{4}$ minute.

Remember

- A unit rate has 1 as its second quantity, such as 2 miles per 1 hour.
- With fractions, write a complex fraction and divide: $a/b \div c/d = a/b \times d/c$.
- Dividing by a fraction means multiplying by its reciprocal.
- Compare rates by finding each unit rate: a lower unit price is the better buy, and a higher speed is faster.
- Every rate has two unit rates, and they are reciprocals of each other.