

Grade 7 · Unit Rates with Fractions · Quiz

Common Core 7.RP.A.1 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

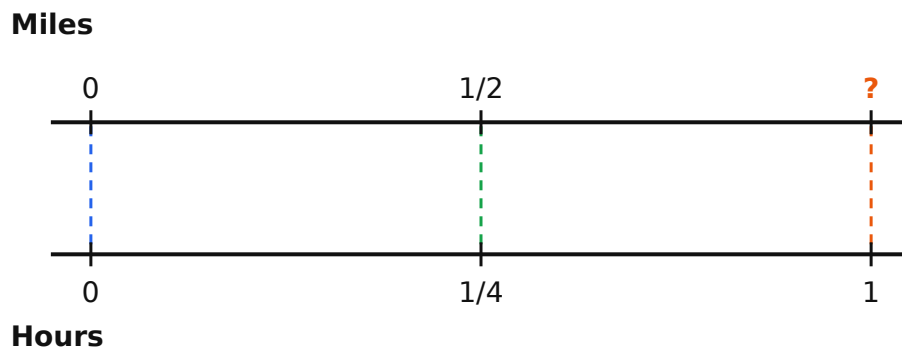
Answer these 10 multiple-choice questions on unit rates with fractions. Each question has one correct answer. Divide the first quantity by the second, watch the units, and read the explanation after each question to learn from mistakes.

Grade 7 Common Core: 7.RP.A.1

Questions

Question 1

A runner covers $\frac{1}{2}$ mile in $\frac{1}{4}$ hour. What is the unit rate?



Find the miles for 1 hour.

- A. 2 miles per hour
- B. $\frac{1}{8}$ mile per hour
- C. $\frac{1}{2}$ mile per hour
- D. 4 miles per hour

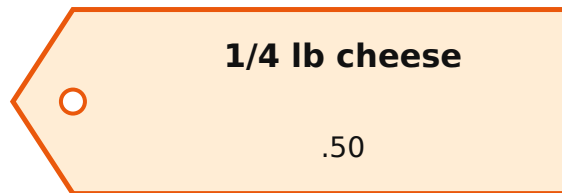
Question 2

A recipe uses $\frac{3}{4}$ cup of milk for $\frac{1}{2}$ batch. How much milk is needed for 1 batch?

- A. $\frac{3}{8}$ cup
- B. $\frac{3}{2}$ cup
- C. $\frac{1}{4}$ cup
- D. $1\frac{1}{2}$ cups

Question 3

A $\frac{1}{4}$ -pound slice of cheese costs .50. What is the price per pound?



Price of one slice.

- A. \$0.625
- B. \$5.00
- C. \$10.00
- D. \$2.25

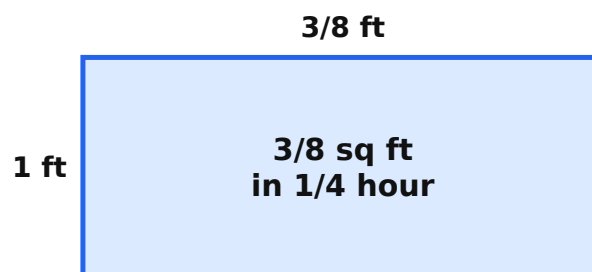
Question 4

Ethan walks $\frac{1}{2}$ mile in 10 minutes. What is his speed in miles per hour?

- A. $\frac{1}{20}$ mile per hour
- B. 3 miles per hour
- C. 5 miles per hour
- D. 30 miles per hour

Question 5

Mei paints $\frac{3}{8}$ square foot in $\frac{1}{4}$ hour. How many square feet does she paint per hour?



The area painted in $\frac{1}{4}$ hour.

- A. $\frac{3}{32}$ sq ft per hour
- B. $\frac{3}{8}$ sq ft per hour
- C. $1\frac{1}{2}$ sq ft per hour
- D. $\frac{3}{4}$ sq ft per hour

Question 6

Which expression gives the unit rate for $\frac{2}{3}$ mile in $\frac{1}{6}$ hour?

- A. $\frac{2}{3} \div \frac{1}{6}$
- B. $\frac{1}{6} \div \frac{2}{3}$
- C. $\frac{2}{3} \times \frac{1}{6}$
- D. $\frac{2}{3} - \frac{1}{6}$

Question 7

Ethan runs $\frac{1}{3}$ mile in $\frac{1}{9}$ hour. Diego runs $\frac{2}{5}$ mile in $\frac{1}{10}$ hour. Who is faster?

- A. Ethan, by 1 mile per hour
- B. Diego, by 7 miles per hour
- C. Diego, by 1 mile per hour
- D. They run at the same speed

Question 8

Simplify the complex fraction $\frac{\frac{3}{5}}{\frac{3}{10}}$.

- A. $\frac{3}{4}$
- B. $\frac{3}{25}$
- C. $\frac{1}{10}$
- D. $\frac{4}{3}$

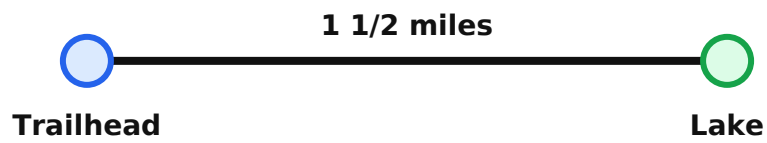
Question 9

A snail crawls $\frac{1}{8}$ foot in $\frac{1}{2}$ minute. At this rate, how far does it crawl in 6 minutes?

- A. $\frac{3}{4}$ foot
- B. 3 feet
- C. $\frac{1}{24}$ foot
- D. $1\frac{1}{2}$ feet

Question 10

A hiker walks $1\frac{1}{2}$ miles in $\frac{3}{4}$ hour. What is the hiker's speed?



The hike takes $\frac{3}{4}$ hour.

- A. $\frac{9}{8}$ miles per hour
- B. 2 miles per hour
- C. $\frac{1}{2}$ mile per hour
- D. 3 miles per hour

Answer key

1. **A** - Divide: $\frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times 4 = 2$. Multiplying the fractions gives $\frac{1}{8}$, which is a common mistake.
2. **D** - $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times 2 = \frac{3}{2}$. Dividing in the wrong order gives $\frac{2}{3}$.
3. **C** - $\$2.50 \div \frac{1}{4} = \$2.50 \times 4 = \$10.00$. Multiplying by $\frac{1}{4}$ gives \$0.625, which is not a price per whole pound.
4. **B** - 10 minutes is $\frac{1}{6}$ hour, and $\frac{1}{2} \div \frac{1}{6} = 3$. Using 60 minutes without dividing by 10 gives 30.
5. **C** - $\frac{3}{8} \times 4 = \frac{3}{2}$. Multiplying the two fractions gives $\frac{3}{32}$.
6. **A** - Miles per hour means miles divided by hours, so the distance goes first: $\frac{2}{3} \div \frac{1}{6} = 4$.
7. **C** - Ethan: $\frac{1}{3} \times 9 = 3$ mph. Diego: $\frac{2}{5} \times 10 = 4$ mph. Diego is faster by 1 mph.
8. **D** - $\frac{2}{5} \times \frac{10}{3} = \frac{20}{15} = \frac{4}{3}$. Using $\frac{3}{10}$ instead of its reciprocal gives $\frac{3}{25}$.
9. **D** - Unit rate: $\frac{1}{8} \div \frac{1}{2} = \frac{1}{4}$ foot per minute. Then $\frac{1}{4} \times 6 = \frac{3}{2}$.
10. **B** - $\frac{3}{2} \div \frac{3}{4} = \frac{3}{2} \times \frac{4}{3} = 2$. Multiplying the fractions gives $\frac{9}{8}$.

Remember:

- A unit rate is the amount of one quantity per 1 unit of another quantity.
- A rate with fractions is a complex fraction, and it equals the first fraction divided by the second.
- Dividing by a fraction means multiplying by its reciprocal.
- Convert units first when the two quantities use different units, such as minutes and hours.
- Check by multiplying the unit rate by the second quantity to get the first quantity.