

Grade 7 · Unit Rates with Fractions · Test Answer Key

Common Core 7.RP.A.1 · mathovore.fr

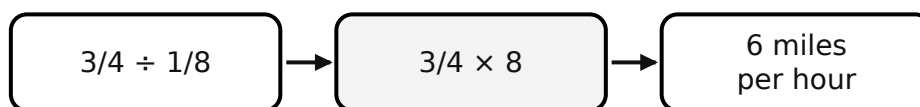
Use this answer key to score the test. Each question lists the worked solution and a scoring guide. Award points for correct setup and correct final answers with units. Add the points to get a score out of 20.

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

Question 1: Bike trip (2 points)

$$\frac{3}{4} \div \frac{1}{8} = \frac{3}{4} \times 8 = 6. \text{ 6 miles per hour}$$

Scoring: 1 point for dividing the distance by the time; 1 point for the correct answer with units.



Solution steps.

Question 2: Water flow (2 points)

$$\frac{5}{6} \div \frac{1}{3} = \frac{5}{6} \times 3 = \frac{15}{6} = \frac{5}{2} = 2\frac{1}{2} \text{ gallons per minute}$$

Scoring: 1 point for multiplying by the reciprocal; 1 point for the simplified answer.

Question 3: Almond price (2 points)

$$\$6.00 \div \frac{3}{4} = \$6.00 \times \frac{4}{3} = \$8.00. \text{ \$8.00 per pound}$$

Scoring: 1 point for the correct setup; 1 point for the correct answer with units.

Question 4: Minutes and hours (2 points)

$$15 \text{ minutes is } \frac{1}{4} \text{ hour. } \frac{3}{4} \div \frac{1}{4} = 3. \text{ 3 miles per hour}$$

Scoring: 1 point for converting 15 minutes to $\frac{1}{4}$ hour; 1 point for the correct answer.

Question 5: Poster paint (2 points)

$$\frac{5}{8} \div \frac{1}{4} = \frac{5}{8} \times 4 = \frac{20}{8} = \frac{5}{2} = 2\frac{1}{2} \text{ square feet per hour}$$

Scoring: 1 point for the division; 1 point for the simplified answer with units.

Question 6: Cyclist comparison (2 points)

A: $\frac{2}{3} \div \frac{1}{6} = 4$ mph. B: $\frac{3}{4} \div \frac{1}{5} = \frac{3}{4} \times 5 = \frac{15}{4} = 3\frac{3}{4}$ mph.

$4 - 3\frac{3}{4} = \frac{1}{4}$. **Cyclist A is faster, by $\frac{1}{4}$ mile per hour.**

Scoring: 1 point for both correct rates; 1 point for naming the faster cyclist with the correct difference.

Question 7: Find the error (2 points)

Liam multiplied instead of dividing. The correct unit rate is $\frac{1}{3} \div \frac{1}{6} = \frac{1}{3} \times 6 = 2$. **2 miles per hour**

Scoring: 1 point for the correct rate of 2 mph; 1 point for explaining that the distance must be divided by the time.

Question 8: Muffin recipe (2 points)

(a) $\frac{3}{4} \div \frac{1}{2} = \frac{3}{2}$. **$1\frac{1}{2}$ cups per batch**

(b) $\frac{3}{2} \times 3 = \frac{9}{2}$. **$4\frac{1}{2}$ cups**

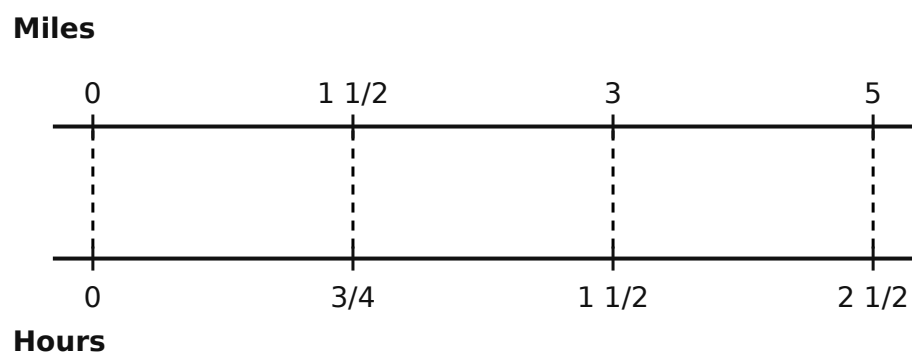
Scoring: 1 point for each part.

Question 9: Hiking (2 points)

(a) $1\frac{1}{2} = \frac{3}{2}$, so $\frac{3}{2} \div \frac{3}{4} = \frac{3}{2} \times \frac{4}{3} = 2$. **2 miles per hour**

(b) $2 \times 2\frac{1}{2} = 5$. **5 miles**

Scoring: 1 point for each part.



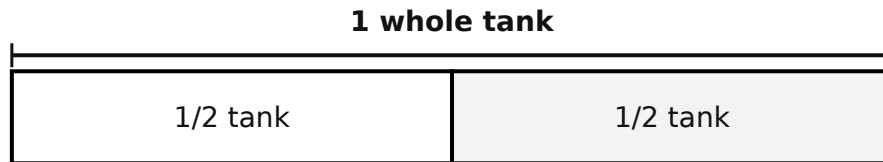
The pace is 2 miles per hour.

Question 10: Filling a tank (2 points)

(a) $\frac{1}{2} \div \frac{3}{4} = \frac{1}{2} \times \frac{4}{3} = \frac{2}{3}$. $\frac{2}{3}$ of the tank per minute

(b) $1 \div \frac{2}{3} = \frac{3}{2}$. $1\frac{1}{2}$ minutes

Scoring: 1 point for each part.



Two halves of $\frac{3}{4}$ minute each take $1\frac{1}{2}$ minutes.

Total
20 points