

# Grade 7 - Unit Rates with Fractions - Test Answer Key

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

Use this answer key and scoring guide to grade the unit rates test. Each solution shows the full work, and the scoring note explains how the points are awarded. Give partial credit for correct steps even when the final answer is wrong.

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

## Question 1 - Walking rate [2 pts]

$$\frac{3}{4} \div \frac{1}{3} = \frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$$

$2\frac{1}{4}$  mph

*Scoring: 1 point for setting up the division of miles by hours; 1 point for the correct unit rate with units.*

## Question 2 - Better price [2 pts]

A:  $4.50 \div 18 = 0.25$

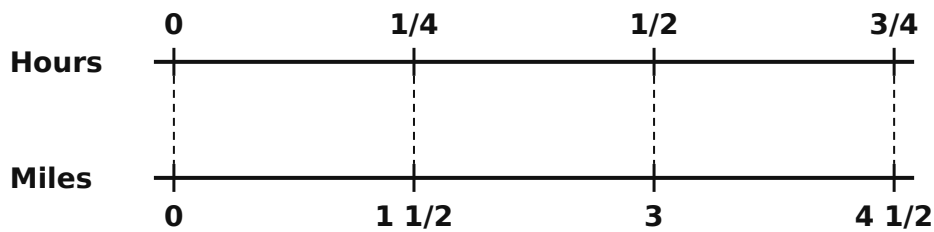
B:  $7.20 \div 30 = 0.24$

**Pack B (\$0.24 per pencil)**

*Scoring: 1 point for both unit prices; 1 point for naming Pack B.*

## Question 3 - Double number line [2 pts]

- a. Unit rate:  $\frac{3}{2} \div \frac{1}{4} = \frac{3}{2} \times 4 = 6$ , so **6 miles per hour**.  
b.  $6 \times 2\frac{1}{2} = 15$ , so **15 miles**.



The speed is 6 miles per hour.

*Scoring: 1 point for each part. Allow the table or double number line to be used instead of the multiplication.*

#### Question 4 - Hours per page [2 pts]

$$\frac{1}{2} \div \frac{2}{3} = \frac{1}{2} \times \frac{3}{2} = \frac{3}{4}$$

$\frac{3}{4}$  hour per chapter

*Scoring: 1 point for putting hours on top; 1 point for the correct answer with units.*

#### Question 5 - Complex fraction [2 pts]

$$\frac{5}{6} \div \frac{2}{3} = \frac{5}{6} \times \frac{3}{2} = \frac{15}{12} = \frac{5}{4}$$

$\frac{5}{4}$ ; the recipe uses  $1\frac{1}{4}$  cups of flour per batch

*Scoring: 1 point for the correct quotient; 1 point for the meaning in context.*

#### Question 6 - Complete the table [2 pts]

Unit rate:  $6 \div \frac{1}{2} = 12$  dollars per hour.

For  $2\frac{1}{2}$  hours:  $12 \times 2.5 = 30$ .

| Hours   | $\frac{1}{2}$ | 1  | $2\frac{1}{2}$ |
|---------|---------------|----|----------------|
| Dollars | 6             | 12 | 30             |

Completed table.

**\$12 and \$30**

Scoring: 1 point for the unit rate; 1 point for both missing entries.

### Question 7 - Compare speeds [2 pts]

Turtle:  $\frac{3}{8} \times 4 = \frac{3}{2}$  ft/min.

Lizard:  $\frac{5}{12} \times 3 = \frac{5}{4}$  ft/min.

$$\frac{3}{2} - \frac{5}{4} = \frac{1}{4}$$

**The turtle, by  $\frac{1}{4}$  foot per minute**

Scoring: 1 point for both unit rates; 1 point for the faster animal and the difference.

### Question 8 - Trip average [3 pts]

a. First part:  $6 \div \frac{1}{2} = 12$  mph. Second part:  $\frac{9}{2} \div \frac{3}{4} = \frac{9}{2} \times \frac{4}{3} = 6$  mph.

b. Total distance  $6 + 4\frac{1}{2} = 10\frac{1}{2}$  miles; total time  $\frac{1}{2} + \frac{3}{4} = 1\frac{1}{4}$  hours;  $\frac{21}{2} \div \frac{5}{4} = \frac{21}{2} \times \frac{4}{5} = \frac{42}{5} = 8.4$  mph.

**12 mph, 6 mph; average 8.4 mph**

Scoring: 1 point for each part speed; 1 point for the average (total distance over total time).  
Averaging 12 and 6 to get 9 earns no point for the average.

### Question 9 - Faucet [3 pts]

a.  $\frac{1}{3} \div \frac{1}{4} = \frac{4}{3} = 1\frac{1}{3}$  gallons per minute.

b.  $\frac{4}{3} \times 6 = 8$  gallons.

c.  $20 \div \frac{4}{3} = 20 \times \frac{3}{4} = 15$  minutes.

Gallons

**4/3**

Minutes

**1**

The unit rate is 4/3 gallons per minute.

**$1\frac{1}{3}$  gal/min; 8 gallons; 15 minutes**

Scoring: 1 point for each part. Accept the answer 1.33 gal/min only if the fraction is also shown.

|                  |
|------------------|
| <b>Total</b>     |
| <b>20 points</b> |