

Grade 7 - Unit Rates with Fractions - Answer Key

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

Use this answer key to check your work on the unit rates worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer is different, compare each step and look for the first place where the work changes.

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

Exercise 1 - Words per minute

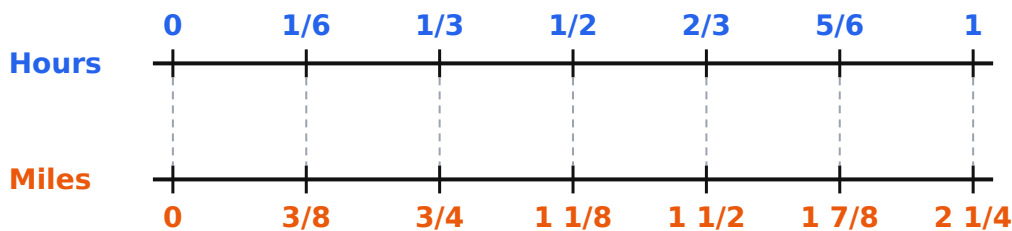
Divide words by minutes: $180 \div 3 = 60$

60 words per minute

Exercise 2 - Walking speed

Divide distance by time: $\frac{3}{8} \div \frac{1}{6} = \frac{3}{8} \times 6 = \frac{18}{8} = \frac{9}{4}$.

$2\frac{1}{4}$ miles per hour



One hour matches $2 \frac{1}{4}$ miles.

Exercise 3 - Sugar per batch

$6 \div \frac{2}{3} = 6 \times \frac{3}{2} = 9$.

\$9 per yard

Exercise 4 - Hourly pay

$$27 \div 1\frac{1}{2} = 27 \div \frac{3}{2} = 27 \times \frac{2}{3} = 18.$$

\$18 per hour

Exercise 5 - Cycling speed

Change the mixed number: $2\frac{1}{2} = \frac{5}{2}$

$$\frac{5}{2} \div \frac{1}{4} = \frac{5}{2} \times 4 = 10$$

10 miles per hour

Exercise 6 - Painting rate

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

$\frac{2}{3}$ of a wall per hour

Exercise 7 - Complex fraction

Complex fraction: $(\frac{7}{8} \text{ in}) / (\frac{1}{4} \text{ day})$ means $\frac{7}{8} \div \frac{1}{4} = \frac{7}{8} \times 4 = \frac{7}{2}$.

$3\frac{1}{2}$ inches per day

Exercise 8 - Cereal price

$$4.20 \div 12 = 0.35$$

\$0.35 per ounce

Exercise 9 - Garden hose

$$3\frac{1}{2} = \frac{7}{2} \text{ and } 1\frac{3}{4} = \frac{7}{4}$$

$$\frac{7}{2} \div \frac{7}{4} = \frac{7}{2} \times \frac{4}{7} = 2$$

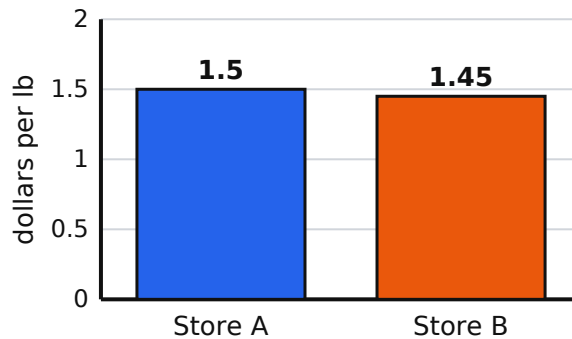
2 gallons per minute

Exercise 10 - Better buy

Store A: $7.50 \div 5 = 1.50$

Store B: $11.60 \div 8 = 1.45$

Store B, at \$1.45 per pound



Store B has the lower unit price.

Exercise 11 - Distance walked

Distance = rate $\times$ time

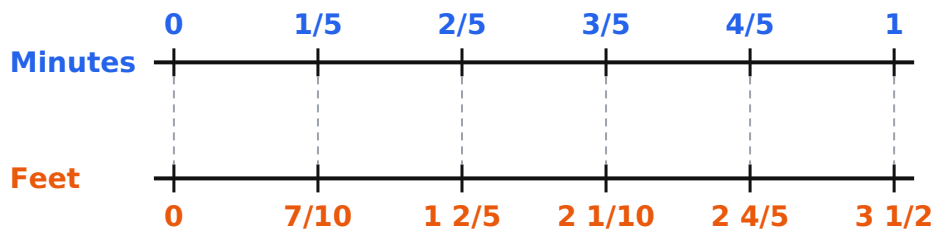
$$\frac{7}{2} \times \frac{9}{4} = \frac{63}{8} = 7\frac{7}{8}$$

$7\frac{7}{8}$ miles

Exercise 12 - Snail speed

$$\frac{7}{10} \div \frac{1}{5} = \frac{7}{10} \times 5 = \frac{7}{2}$$

$3\frac{1}{2}$ feet per minute



In 1 minute the caterpillar climbs $3\frac{1}{2}$ feet.

Exercise 13 - Flipped unit rate

Hours on top: $\frac{1}{3} \div \frac{4}{5} = \frac{1}{3} \times \frac{5}{4} = \frac{5}{12}$.

$\frac{5}{12}$ hour per panel

Exercise 14 - Complete the table

Unit rate: $3 \div \frac{1}{4} = 12$ miles per hour.

Time $\frac{1}{2}$: $12 \times \frac{1}{2} = 6$. Time 1: 12. Time $3\frac{1}{2}$: $12 \times 3.5 = 42$.

Time (hours)	1/4	1/2	1	3 1/2
Distance (miles)	3	6	12	42

Completed table.

6, 12, and 42 miles; unit rate 12 miles per hour

Exercise 15 - Who is faster?

Noah: $\frac{3}{4} \times 12 = 9$ miles per hour.

Aisha: $\frac{2}{3} \times 10 = \frac{20}{3} = 6\frac{2}{3}$ miles per hour.

Since $9 > 6\frac{2}{3}$, Noah is faster.

Noah, 9 mph versus $6\frac{2}{3}$ mph

Exercise 16 - Road trip average

Total distance: $45 + 60 = 105$ miles.

Total time: $\frac{3}{4} + 1\frac{1}{4} = 2$ hours.

$105 \div 2 = 52.5$

52.5 miles per hour

Exercise 17 - Filling a pool

Rate: $\frac{3}{5} \div \frac{1}{2} = \frac{6}{5}$ pool per hour.

Time for 1 pool: $1 \div \frac{6}{5} = \frac{5}{6}$ hour.

$$\frac{5}{6} \times 60 = 50$$

50 minutes

Exercise 18 - Fence painters

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

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

They paint at the same rate, $\frac{1}{2}$ of a fence per hour

	Maya	Liam
Fence per hour	$\frac{1}{2}$	$\frac{1}{2}$

Both rates are equal.

Exercise 19 - Gas mileage

Miles per gallon: $130.5 \div 4.5 = 29$.

Gallons for the trip: $348 \div 29 = 12$.

29 miles per gallon; 12 gallons

Exercise 20 - Juice sizes

$2.08 \div 16 = 0.13$, $2.88 \div 24 = 0.12$, $4.16 \div 32 = 0.13$ dollars per ounce.

Best: 24 ounces at \$0.12. Worst: \$0.13.

$$96 \times 0.13 = 12.48 \text{ and } 96 \times 0.12 = 11.52; 12.48 - 11.52 = 0.96$$

The 24-ounce size is best; savings \$0.96