

Grade 8 - Proportional Relationships and Slope - Answer Key

Common Core 8.EE.B.5 · maths-pdf.fr/en/

This answer key gives a full worked solution for each of the 20 problems on the proportional relationships worksheet (Common Core 8.EE.B.5). Compare each step with your own work, not only the final answer, and note any step where your method differed.

Grade 8 · Common Core State Standards: **8.EE.B.5**

Exercise 1 - Unit rate from a table

$\frac{4.5}{3} = 1.5$, $\frac{7.5}{5} = 1.5$, $\frac{12}{8} = 1.5$. The ratio is constant.

$$y = 1.5x$$

Exercise 2 - Slope from two points

Rise = 10 and run = 4, so slope = $\frac{10}{4} = \frac{5}{2}$.

$$\frac{5}{2}$$

Exercise 3 - Equation from a point

$$k = \frac{15}{5} = 3.$$

$$y = 3x$$

Exercise 4 - Fill the table

Multiply each x by 4.

x	1	2	5	9
y	4	8	20	36

Completed table.

4, 8, 20, 36

Exercise 5 - Is it proportional?

$\frac{5}{1}=5$, $\frac{9}{2}=4.5$, $\frac{13}{3}\approx 4.33$. The ratios are not equal.

Not proportional

Exercise 6 - Read a slope



Slope = $\frac{3}{2}$.

$$y = \frac{3}{2}x$$

Exercise 7 - Apple price

$\frac{12.50}{5} = 2.50$ dollars per pound.

$$c = 2.50p$$

Exercise 8 - Negative slope

Rise = -4 and run = 2, so slope = -2.

$$y = -2x$$

Exercise 9 - Slope from rise and run

$$\frac{4}{8} = \frac{1}{2}.$$

$$\frac{1}{2}$$

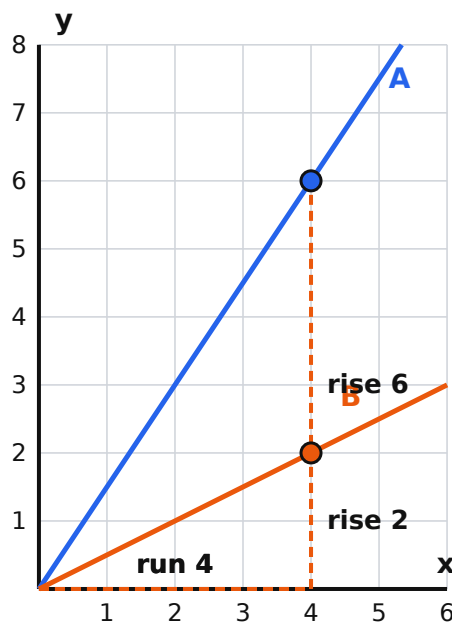
Exercise 10 - Find k

$$k = \frac{6}{8} = \frac{3}{4}.$$

$$y = \frac{3}{4} \cdot 20 = 15.$$

$$k = \frac{3}{4}, y = 15$$

Exercise 11 - Compare steepness



Slope triangles for both lines.

$$\text{Line A: } \frac{6}{4} = \frac{3}{2}. \text{ Line B: } \frac{2}{4} = \frac{1}{2}.$$

Line A is steeper (slope 3/2 versus 1/2)

Exercise 12 - Two cars

Car B: $120 \div 2 = 60$ mph. Car A: 55 mph.

Car B is faster

Exercise 13 - Water tank

Rate = $\frac{10}{4} = 2.5$ gallons per minute.

$y = 2.5x$; $40 = 2.5x$, so $x = 16$.

2.5 gal/min; 16 minutes

Exercise 14 - Smoothies

Unit price: $14.25 \div 3 = 4.75$.

8 smoothies: $8 \cdot 4.75 = 38$.

\\$38.00

Exercise 15 - Earnings graph

Priya: $27 \div 2 = 13.50$ dollars per hour.

Diego: $72.50 \div 5 = 14.50$ dollars per hour.

Diego earns \\$1.00 more per hour

Exercise 16 - Speeds

Second printer: $85 \div 5 = 17$ pages per minute. First printer: 18.

The first printer, by 1 page per minute

Exercise 17 - Recipe table

$3 \div 2 = 1.5$, $7.5 \div 5 = 1.5$, $12 \div 8 = 1.5$, $18 \div 12 = 1.5$. Proportional.

$1.5 \cdot 20 = 30$.

Proportional; 30 cups of milk

Exercise 18 - Phone plans

Plan 1: $k = 0.12$. Plan 2: $k = 0.10$.

The second plan (10 cents per message)

Exercise 19 - Explain the origin

No. In $y = kx$, when $x = 0$, $y = 0$. A line through $(0, 3)$ has a starting amount, so the relationship is not proportional.

Liam is incorrect

Exercise 20 - Road trip

$k = 195 \div 3 = 65$ mph, so $y = 65x$.

$65 \cdot 7 = 455$.

$y = 65x$; **455 miles**