

Grade 8 - Proportional Relationships and Slope - Worksheet

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

Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice proportional relationships, unit rates and slope on graphs, tables and equations (Common Core 8.EE.B.5). Each problem has its own space for work, so print the page and write directly on it.

The problems start with direct skill checks and grow harder as you go. Later items compare rates in graphs, tables and equations and use them in real situations. Use the answer key afterwards to check every step.

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

Exercise 1 - Unit rate from a table

batches	3	5	8
gallons of milk	4.5	7.5	12

Milk used for pancake batches.

Show that the relationship is proportional by finding $\frac{y}{x}$ for each column, then write the equation.

Exercise 2 - Slope from two points

A line passes through (0,0) and (4,10). Find its slope.

Exercise 3 - Equation from a point

A proportional relationship includes the point (5,15). Write its equation.

Exercise 4 - Fill the table

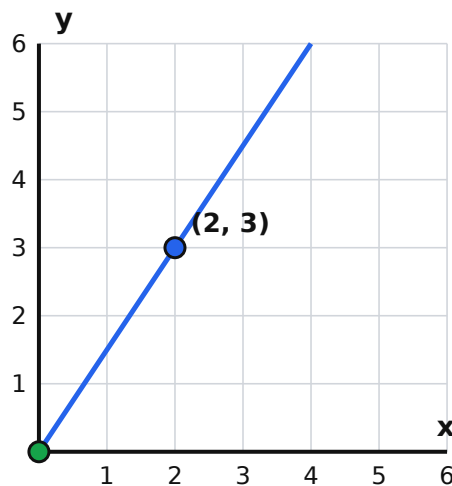
Complete the table for $y = 4x$: $x = 1, 2, 5, 9$.

Exercise 5 - Is it proportional?

x	y
1	5
2	9
3	13

Is the relationship in the table proportional? Explain.

Exercise 6 - Read a slope



A line through the origin.

Find the slope of the line and write its equation.

Exercise 7 - Apple price

Five pounds of apples cost \$12.50 at the farmers market. Find the unit price and write an equation for the cost c of p pounds.

Exercise 8 - Negative slope

A proportional line passes through $(0,0)$ and $(2,-4)$. Find its slope and equation.

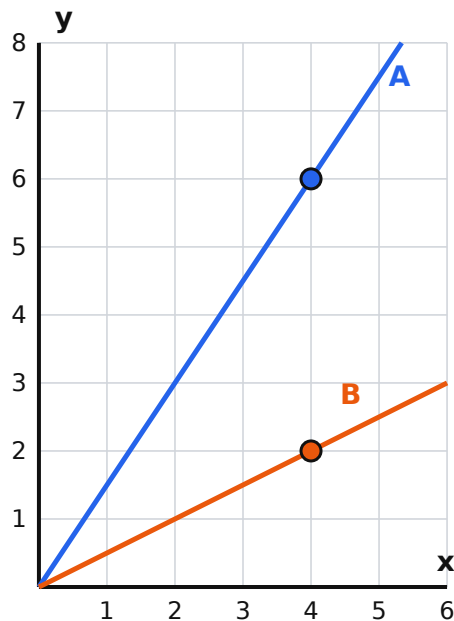
Exercise 9 - Slope from rise and run

A ramp rises 4 feet over a horizontal run of 6 feet. Find its slope.

Exercise 10 - Find k

The relationship $y = kx$ includes the point $(8,6)$. Find k and the value of y when $x = 20$.

Exercise 11 - Compare steepness



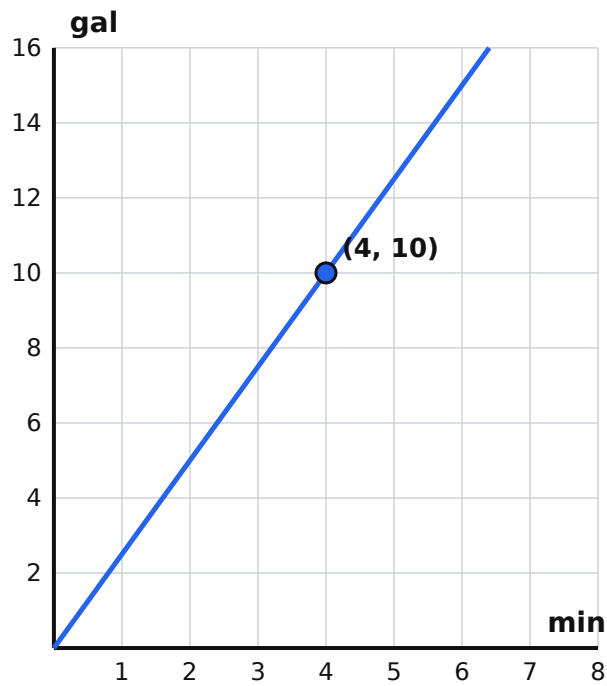
Lines A and B both start at the origin.

Find the slope of each line. Which is steeper?

Exercise 12 - Two cars

Car A follows $y = 55x$ (miles after x hours). Car B drives 120 miles in 2 hours. Which car is faster?

Exercise 13 - Water tank



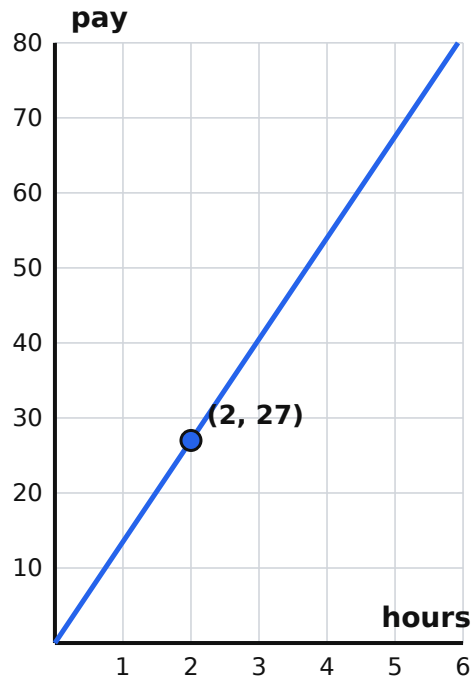
Gallons in a tank after x minutes.

The graph shows a tank filling at a constant rate. Find the rate in gallons per minute and how long it takes to reach 40 gallons.

Exercise 14 - Smoothies

Three smoothies cost \$14.25 at the school store. Find the cost of 8 smoothies at the same rate.

Exercise 15 - Earnings graph



Priya's pay after x hours of work.

Priya's pay is shown on the graph. Diego earns \$72.50 for 5 hours of work. Who earns more per hour, and by how much?

Exercise 16 - Speeds

A printer follows $y = 18x$ (pages after x minutes). A second printer prints 85 pages in 5 minutes. Which printer is faster, and by how many pages per minute?

Exercise 17 - Recipe table

cups flour	cups milk
2	3
5	7.5
8	12
12	18

A pancake recipe uses the amounts shown. Is the relationship proportional? If so, find the milk needed for 20 cups of flour.

Exercise 18 - Phone plans

A prepaid plan charges \$0.12 per text message with no fee. Another plan is shown by the equation $y = 0.1x$. Which plan charges less per message?

Exercise 19 - Explain the origin

Liam says the graph of a proportional relationship can start at $(0,3)$. Is he correct? Explain.

Exercise 20 - Road trip

Aisha drives at a constant speed. After 3 hours she is 195 miles from home, and she started at home. Write an equation, then find how far she drives in 7 hours.