What Makes It Proportional

For every table, divide each output by its input and write the number next to the row. Same number every row means proportional.

Name _____ Date _____

Words we use

say the math word, then the plain English

WORD	PLAIN ENGLISH	WHAT YOU DO
Proportional	Always multiplies by the same number.	Divide each output by its input and check that the number never changes.
Proportion	Two ratios that are equal.	Write them as fractions and check that they divide to the same number, like $\frac{1.50}{2} = \frac{3.00}{4}$.
Input and output	What you start with, and what you get.	Input is the first column (cups); output is the second (cost).
Table	A list of matching inputs and outputs.	Test it one row at a time.

Part A Test the tables

TABLE	OUTPUT ÷ INPUT, EVERY ROW	PROPORTIONAL?
Lemonade: 1 cup $0.75, 2 cups $1.50, 3 cups $2.25, 4 cups $3.00		
Bowling: 1 game $8, 2 games $13, 3 games $18		
Pizza: 1 slice $2.50, 2 slices $5.00, 4 slices $10.00		
Taxi: 1 mile $5, 2 miles $7, 4 miles $11		

Part B Stories

1. A phone plan costs $20 a month plus $5 per gigabyte. Make a table for 0, 1, 2, and 4 gigabytes. Is it proportional? Why?

2. Stickers cost $0.40 each. Make a table for 5, 10, and 25 stickers. Is it proportional? What number does every row divide to?

3. Write a proportion using two rows of the sticker table.

Part C Exit ticket

1. A table shows 2 hours, $30; 4 hours, $60; 5 hours, $80. Is it proportional? Show every row.

2. What does proportional mean, in plain English?

3. Why does a $3 shoe fee make bowling not proportional?

Answer key

Part A. Lemonade: 0.75 every row, proportional. Bowling: 8, 6.5, 6, not proportional. Pizza: 2.50 every row, proportional. Taxi: 5, 3.5, 2.75, not proportional.

Part B. 1. $20, $25, $30, $40. Not proportional: zero gigabytes still costs $20. 2. $2.00, $4.00, $10.00. Proportional; every row divides to 0.40. 3. For example $\frac{2.00}{5} = \frac{4.00}{10}$.

Part C. 1. No: 15, 15, then 16. 2. Always multiplies by the same number. 3. Zero games still costs $3, so zero in does not give zero out.