

Rate Link Lab

Connect words, tables and graphs of the same relationship

GRADE 6 • 6.PFA.2.e

6.PFA.2.e "Make connections between and among multiple representations of the same proportional relationship using verbal descriptions, ratio tables, and graphs."

NAME _____

DATE _____

Build understanding

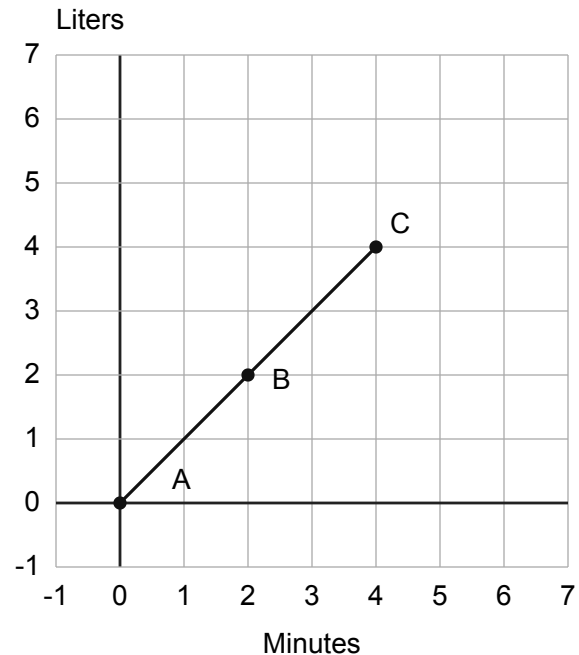
A proportional relationship has a constant output for each one input. Each table row becomes a graph point in (input, output) order. Zero input gives zero output. A verbal rule states the same unit rate. Compare representations using matching pairs and units.

Worked example

Water flows at 1 liter per minute. A table has rows (0,0), (2,2), (4,4). How does the graph match?

The x-coordinate is minutes; the y-coordinate is liters. Each nonzero pair has liters / minutes = 1.

The graph passes through each table pair, including the origin; each minute adds 1 liter.



Read each graph scale and axis label. Complete the requested table, graph and written explanation. Label plotted points as directed.

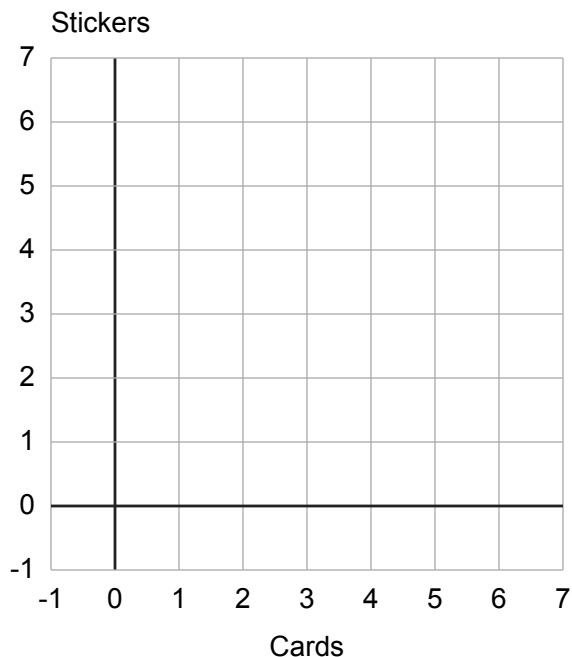
1. Words to a table

A club puts 2 stickers on each card. Complete the ratio table. State the unit rate and explain the zero row.

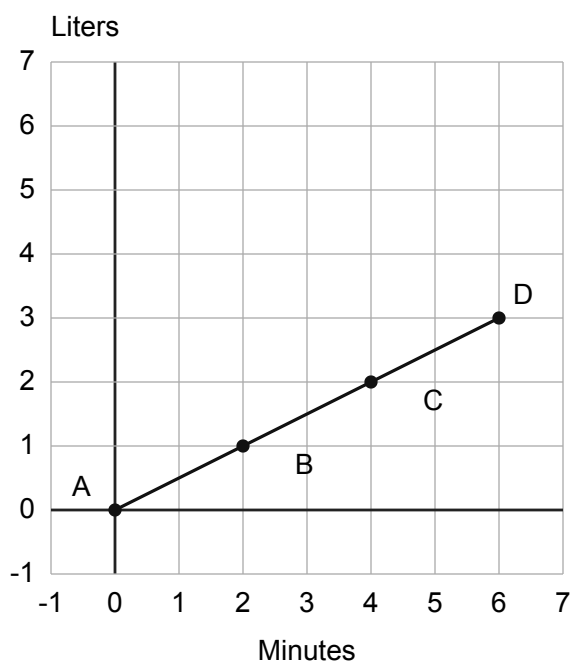
Cards	Stickers
0	
1	
2	
3	

2. Table pairs to a graph

For the same card project, graph (cards, stickers): A(0,0), B(1,2), C(2,4), D(3,6). Explain how the graph shows 2 stickers per card.

**3. Graph to table and words**

The graph shows water added over time. Read A-D and write a two-column ratio table on the lines. Give the liters-per-minute rate and a matching verbal rule.



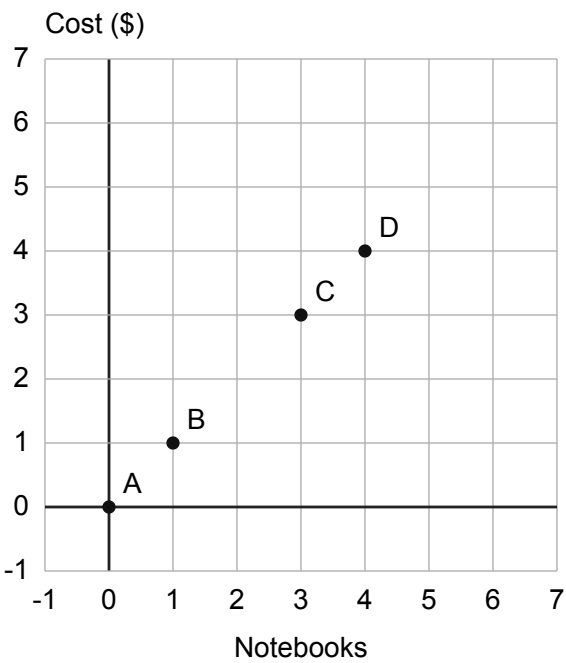
4. Which words match?

This table describes a different tap. Amir says it adds 1.5 liters each minute; Bea says 2 liters. Choose the matching description. Name three graph points in (minutes, liters) order.

Minutes	Liters
0	0
2	3
4	6

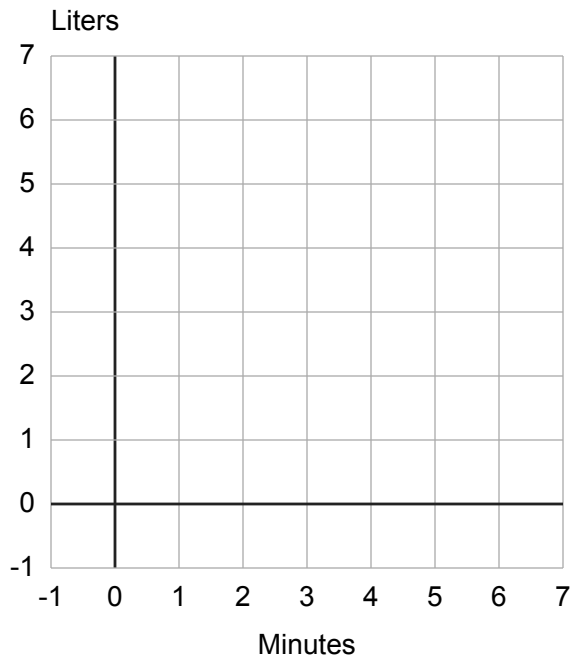
5. Check a store sign

A store graph shows notebook costs. A sign claims each notebook costs \$2. Use the graph to correct the sign and write two rows of its ratio table.

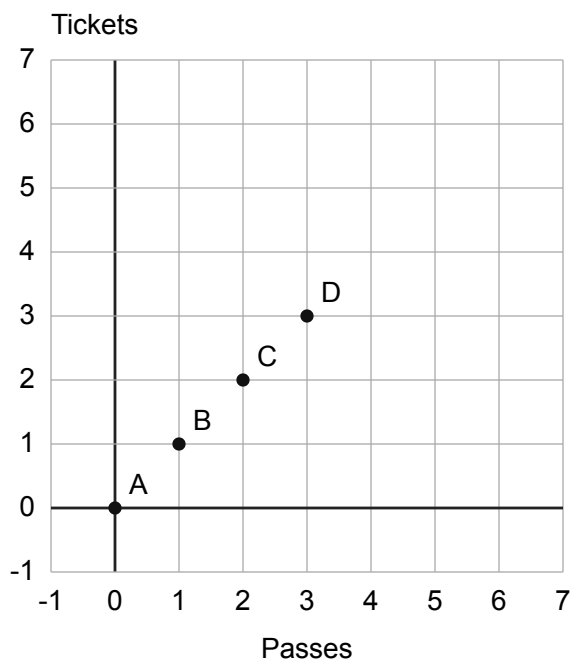


6. Connect all three forms

Graph the tap table from Task 4 using $A(0,0)$, $B(2,3)$, $C(4,6)$. Join the points for the first four minutes of continuous flow. Explain how table, words and graph show the same rate.

**7. Find the broken connection**

A pass gives 2 tickets. A table lists (passes,tickets): $(0,0)$, $(1,2)$, $(2,4)$, $(3,6)$. The graph is claimed to match. Identify the incorrect representation and list the correct points for B, C and D.



Require the actual graph and requested table entries. Discrete counts use separate points; continuous water flow uses a joined segment over the stated interval. A graph point records the same input and output as a table row. The challenge intentionally supplies a wrong graph for students to diagnose.

Task 1

Stickers: 0, 2, 4, 6. The rate is 2 stickers per card; no cards require no stickers.

Cards	Stickers
0	0
1	2
2	4
3	6

Task 2

Plot the four listed points. Each increase of 1 card adds 2 stickers; the origin matches zero cards and zero stickers.

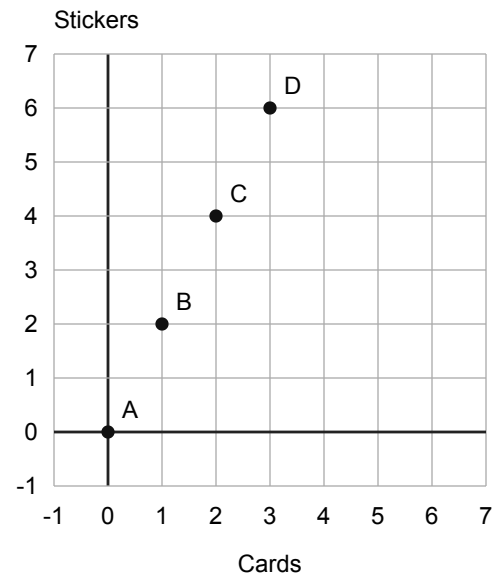
**Task 3**

Table: (0,0), (2,1), (4,2), (6,3). The rate is 0.5 liter per minute; each 2 minutes adds 1 liter.

Task 4

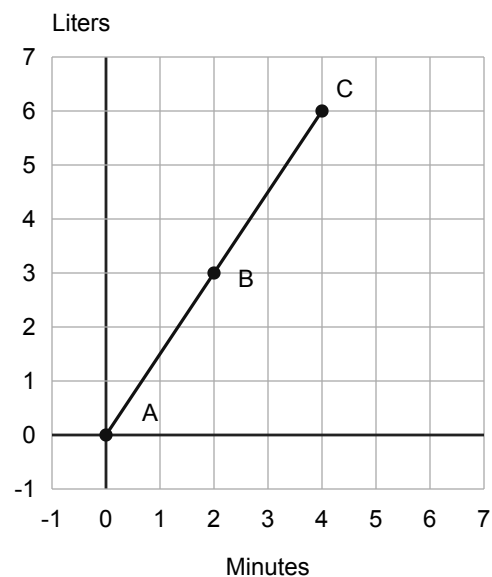
Amir: $3 / 2 = 6 / 4 = 1.5$ liters per minute. The graph must include (0,0), (2,3) and (4,6).

Task 5

The sign should say \$1 per notebook. Sample rows: 1 notebook costs \$1; 4 notebooks cost \$4. The points have equal input and output values: for example, 4 notebooks cost \$4. Divide cost by notebooks to get \$1 each.

Task 6

The line segment runs through all three points. The table increases 3 liters per 2 minutes, the rule is 1.5 liters per minute, and the graph has the same rise and run. Both nonzero table rows give liters / minutes = 1.5. The plotted rise of 3 for a run of 2 represents this same rate.

**Task 7**

The graph is incorrect: it shows 1 ticket per pass. It should plot B(1,2), C(2,4) and D(3,6); A(0,0) is already correct.