LESSON MAKER PRO

Lines in Context

Write, graph, and compare linear functions.

HIGH SCHOOL · FA.F.17

FA.F.17 "Create and graph the equation of a linear function given the rate of change and y-intercept. Compare and contrast up to three linear functions written in various forms (i.e., point-slope, slope-intercept, standard form)."

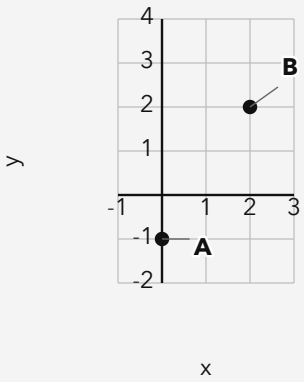
NAME _____ DATE _____

RATE AND STARTING VALUE

In y = mx + b, m is the rate of change and b is the y-intercept. To graph the line, plot (0, b), use the rate as rise over run to find another point, then draw the line.

WORKED EXAMPLE

Find the equation of the line through A and B. Draw the line on the grid.



1. A is on the y-axis, so b = -1.
2. From A to B, rise = 3 and run = 2, so m = 3/2.
3. Write y = 3/2x - 1.
4. Draw the line through A and B.

Answer: y = 3/2x - 1; a line through A and B

PRACTICE 4 problems

1 Write an equation with rate 2 and y-intercept 3. Give two points to plot.

ANSWER _____

2 Write an equation with rate -1/2 and y-intercept 4. Give two points to plot.

ANSWER _____

3 Rewrite 3x + y = 7 in slope-intercept form. State its rate of change.

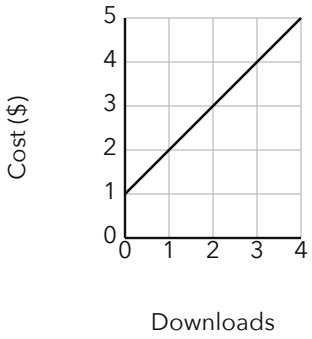
ANSWER _____

4 Which has the greater rate of change: y = -2x + 5 or y - 6 = 4(x - 1)? Give both rates.

ANSWER _____

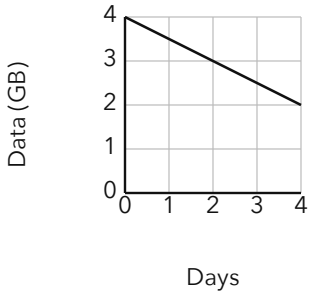
APPLY IT Show your work

1 The graph shows the cost of music downloads. Write the cost equation. What is the cost of 7 downloads?



ANSWER _____

2 The graph shows data left in a streaming plan. Write the data equation. How much is left after 6 days?



ANSWER _____

CHALLENGE One step up

A: y = 2x - 3; B: y + 1 = 2(x - 1); C: 2x + y = 5. Which two graphs match? Where does the other graph cross them? Explain using slopes and intercepts.

WORK SPACE AND ANSWER

Lines in Context

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write an equation with rate 2 and y-intercept 3. Give two points to plot.	**y = 2x + 3; (0, 3) and (1, 5)**
2	Write an equation with rate -1/2 and y-intercept 4. Give two points to plot.	**y = -1/2x + 4; (0, 4) and (2, 3)**
3	Rewrite 3x + y = 7 in slope-intercept form. State its rate of change.	**y = -3x + 7; rate of change: -3**
4	Which has the greater rate of change: y = -2x + 5 or y - 6 = 4(x - 1)? Give both rates.	**y - 6 = 4(x - 1) has the greater rate. The rates are -2 and 4, respectively.**

PART 2 · APPLY IT

1. **y = x + 1; $8** The graph crosses the cost axis at 1 and rises 1 per download. Substitute x = 7 to get y = 8.
2. **y = -1/2x + 4; 1 GB** The graph starts at 4 GB and falls 1 GB every 2 days. Substitute x = 6 to get y = 1.

CHALLENGE

A and B match: both have slope 2 and y-intercept -3. C has slope -2 and y-intercept 5. It crosses their line at (2, 1).

Accept equivalent equations and any two correct points for the practice graphs. For the challenge, C crosses both matching graphs at the same point.