LESSON MAKER PRO

Lines Tell Stories

Read a graph, then write its equation.

GRADE 8 · 8.AT.D.9

8.AT.D.9 "Interpret the graph of a linear function in the form y = mx + b Given the graph of a linear function, identify the slope and y-intercept. Match a linear equation in the form y = mx + b to its graph."

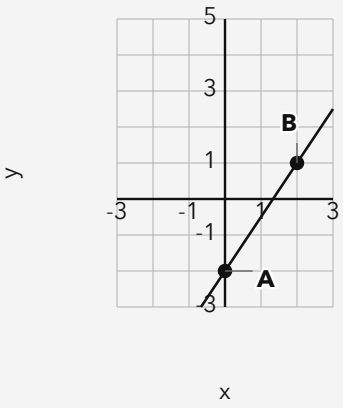
NAME _____ DATE _____

SLOPE AND STARTING VALUE

In y = mx + b, b is where the line crosses the y-axis. To find m on a graph, divide the change in y by the change in x between two points.

WORKED EXAMPLE

Find the slope, y-intercept, and equation of the line.



1. At A, x = 0, so b = -2.
2. From A to B, y rises 3 and x increases 2.
3. m = 3/2. Put m and b into y = mx + b.

Answer: Slope: 3/2; y-intercept: -2; equation: y = 3/2x - 2.

PRACTICE 4 problems

1 Find the slope and y-intercept of y = 4x + 3.

ANSWER _____

2 Find the slope and y-intercept of y = -x + 6.

ANSWER _____

3 Find the slope and y-intercept of y = 1/2x - 5.

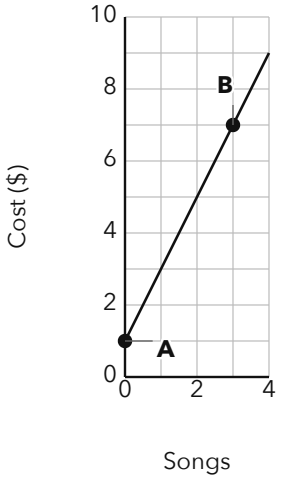
ANSWER _____

4 Find the slope and y-intercept of y = -3x - 1.

ANSWER _____

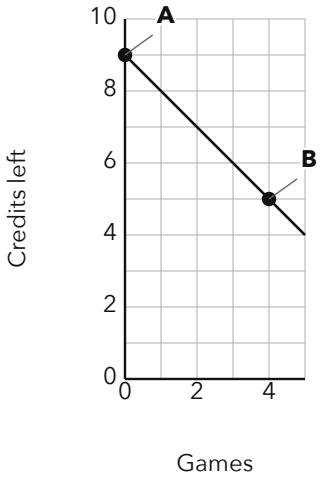
APPLY IT Show your work

1 This graph shows the cost of downloading songs. Find the slope, y-intercept, and equation.



ANSWER _____

2 This graph shows the credits left on an arcade card after playing games. Find the slope, y-intercept, and equation.



ANSWER _____

CHALLENGE One step up

The line y = kx + 4 passes through (3, 13). Find k and explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Lines Tell Stories

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the slope and y-intercept of y = 4x + 3.	**Slope: 4; y-intercept: 3.**
2	Find the slope and y-intercept of y = -x + 6.	**Slope: -1; y-intercept: 6.**
3	Find the slope and y-intercept of y = 1/2x - 5.	**Slope: 1/2; y-intercept: -5.**
4	Find the slope and y-intercept of y = -3x - 1.	**Slope: -3; y-intercept: -1.**

PART 2 · APPLY IT

1. **Slope: 2 dollars per song; y-intercept: 1 dollar; y = 2x + 1.** The cost rises 6 dollars over 3 songs, so the slope is 2. The line crosses the cost axis at 1.
2. **Slope: -1 credit per game; y-intercept: 9 credits; y = -x + 9.** The card loses 4 credits over 4 games, so the slope is -1. The line crosses the credits axis at 9.

CHALLENGE

k = 3. Substituting the point gives 13 = 3k + 4, so 9 = 3k and k = 3.

Accept a y-intercept written as a number or as the point (0, b). Accept equivalent equation forms in the word problems.