

Line Plot Lab

Turn equations, tables, and stories into graphs.

GRADE 8 • MA.8.AR.3.4

MA.8.AR.3.4 "Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form."

NAME _____

DATE _____

GRAPHING A LINE

In $y = mx + b$, b tells where the line crosses the y -axis, and m tells the rise and run. Plot the y -intercept first, use the slope to find more points, then draw a straight line through the points.

WORKED EXAMPLE

Graph $y = 4x - 7$.

1. Identify the y -intercept: $b = -7$, so plot $(0, -7)$.
2. Identify the slope: $m = 4 = 4/1$.
3. From $(0, -7)$, rise 4 and run 1 to plot $(1, -3)$.
4. Draw a straight line through $(0, -7)$ and $(1, -3)$.

Answer: A line through $(0, -7)$ and $(1, -3)$.

PRACTICE 6 problems

- 1** Graph $y = 2x + 5$. Plot at least two points.

ANSWER _____

- 2** Graph $y = -x + 6$. Plot at least two points.

ANSWER _____

- 3** Graph $y = \frac{3}{2}x - 1$. Plot at least two points.

ANSWER _____

- 4** Graph the line represented by the table. x : -2, 0, 2 y : 7, 3, -1

ANSWER _____

- 5** A game player starts with 8 coins and earns 3 coins after each completed level. Let x be the number of levels and y be the total number of coins. Write an equation, then graph it.

ANSWER _____

- 6** A temperature is -5 degrees at noon and drops 2 degrees each hour. Let x be the number of hours after noon and y be the temperature. Write an equation, then graph it.

ANSWER _____

APPLY IT Show your work

- 1** A music festival sells a wristband for \$6 plus \$2 for each ride. Let x be the number of rides and y be the total cost in dollars. Write an equation and graph the relationship. Include at least three points.

WORK SPACE

ANSWER _____

- 2** A skateboard shop charges \$4 to rent safety gear and \$3 for each hour at an indoor park. Let x be the number of hours and y be the total cost in dollars. Write an equation and graph the relationship. Include at least three points.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A line passes through $(-2, 9)$ and has a slope of -3 . Write the equation in slope-intercept form, then graph the line using at least two points.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Graph $y = 2x + 5$. Plot at least two points.	A line through (0, 5) and (1, 7).
2	Graph $y = -x + 6$. Plot at least two points.	A line through (0, 6) and (1, 5).
3	Graph $y = \frac{3}{2}x - 1$. Plot at least two points.	A line through (0, -1) and (2, 2).
4	Graph the line represented by the table. x: -2, 0, 2 y: 7, 3, -1	A line through (-2, 7), (0, 3), and (2, -1).
5	A game player starts with 8 coins and earns 3 coins after each completed level. Let x be the number of levels and y be the total number of coins. Write an equation, then graph it.	$y = 3x + 8$; a line through (0, 8) and (1, 11).
6	A temperature is -5 degrees at noon and drops 2 degrees each hour. Let x be the number of hours after noon and y be the temperature. Write an equation, then graph it.	$y = -2x - 5$; a line through (0, -5) and (1, -7).

PART 2 • APPLY IT

- $y = 2x + 6$; sample points are (0, 6), (1, 8), and (2, 10).** The starting cost is 6, so the y -intercept is 6. The cost rises 2 dollars per ride, so the slope is 2.
- $y = 3x + 4$; sample points are (0, 4), (1, 7), and (2, 10).** The gear charge is the starting value, 4. Each additional hour adds 3 dollars, so the slope is 3.

CHALLENGE

$y = -3x + 3$; sample points are (0, 3) and (1, 0).

Accept any accurate graph with the correct line and at least two correctly plotted points. Equivalent point choices and equivalent slope forms, such as -1 for $-1/1$, are acceptable.