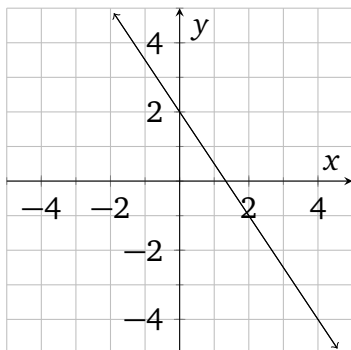


Reading the Graph of a Function

In these exercises, we will practice reading a graph of a function, and translating into verbal, tabular, and formulaic representations.

1. Here is the graph of a function G .



a) Find $G(0)$

b) Find $G(-2)$

c) Find $G(4)$

d) If $G(x) = -1$,
then what was x ?

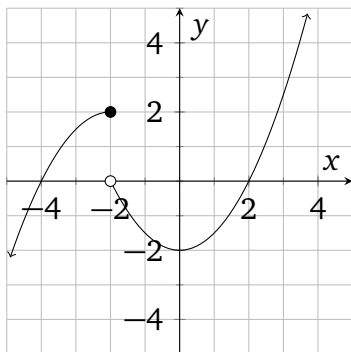
e) Basic Algebra Review: what is the equation of this line in slope-intercept form?

f) Give a *formula* for G . This is subtly different from the previous question.

g) Give a *table* for G .

h) Give a *verbal* representation of G . Use action words to say what G does to its input.

2. Here is the graph of a function P .



a) Find $P(0)$

b) Find $P(2)$

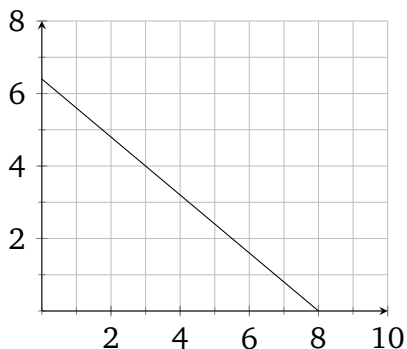
c) Find $P(-2)$

d) Solve $P(x) = 1$

e) Solve $P(x) = 0$

f) Solve $P(x) = -1$

3. Jonah is biking home from a trip to the grocery store. At time t (in minutes since leaving), $d(t)$ is the remaining distance (in km) to home.



- Label the axes of this graph with variables appropriately. If there is context to the problem, the label should also communicate the units of measurement.
- Find $d(8)$. Write a complete sentence explaining what the numbers (both 8 and your result for $d(8)$) mean.
- How far away from Jonah's home is the grocery store?
- Solve $d(t) = 3$. Write a complete sentence explaining what the numbers mean.
- What was Jonah's speed biking home?

4. Google ngram provides data on the frequency of word-use in published books. So, out of all words printed in book in a given year, what percentage were a particular word. Let r be the function that outputs the frequency of the word 'rocket' in year t . Here is the graph of r .



- What is $r(1940)$? Write a complete sentence explaining what the numbers mean.
- There are three or four peaks in this chart. Express the input-output information at the peaks using function notation. For example, by writing something like $r(1) = 2$.
- Do you have knowledge of history that could explain each of the peaks?