

# Chapter 1.1: Linear Exercises

## Calculus I

6 January 2021, College of the Atlantic

Time	People
8	92
12	85
16	78
20	71
24	64

- The above table of data gives the number of people in a poorly taught calculus class at a large university. The time is measured in days since the start of the class.
  - Is the function linear? How can you tell?
  - Make a rough sketch of the function.
  - Determine an equation describing this data.
  - State the meaning of every number and symbol in your equation. Give units.
  - Explain the meaning of the x-intercept of the function. You do not need to calculate its value.
  - Write a concise sentence that describes this function.
- Determine the equation of a line that passes through the points  $(-2, 4)$  and  $(3, 14)$ .
- Determine the equation of a line that passes through the points  $(-4, 8)$  and  $(2, 8)$ .
- Imagine you are writing a Field Guide of Mathematical Functions. What are the “field markings” – i.e., useful identifying characteristics – for linear functions?
  - What does the graph of a linear function look like?
  - How can you tell if a function is linear by looking at a table of values?
  - What is the equation for a linear function?
  - If given a verbal description of a function, how can you tell if it is linear?