Bottle Calibration

Definition

- A **function** is an input-output relationship. For each acceptable input there is exactly one corresponding output.
- The input variable is referred to as the **independent variable**.
- The output variable is called the **dependent variable** as it depends on the input.
- The **domain** of a function is the set of all acceptable inputs.
- The **range** of a function is the set of all possible outputs.

1. For each of the following relationships,
   - Determine whether they are functions.
   - Draw the corresponding graph, and use vertical line test to check your answer from the previous bullet.
   - Determine the domain and range if it is a function.

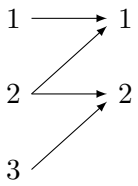
(a) $y = f(x) = x^2$

(b) Input: a positive number;
Output: a number whose absolute value is the input.

(c)

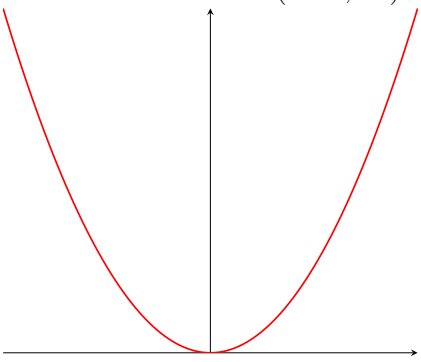
Input	Output
1	1
2	1
3	2

(d)

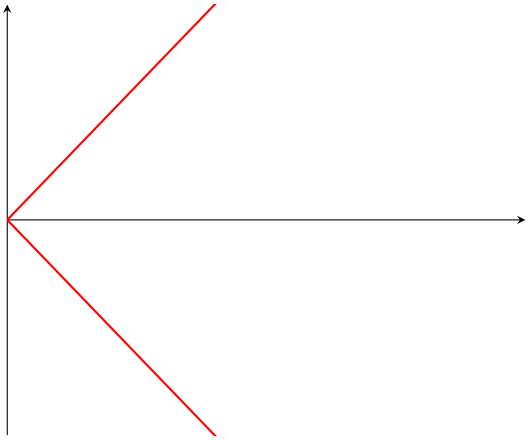


Bottle Calibration – Solutions

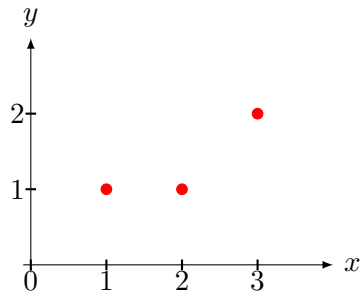
1. (a) Function. Domain: $(-\infty, \infty)$. Range: $[0, \infty)$.



(b) Not a function.



(c) Function. Domain: $\{1, 2, 3\}$. Range: $\{1, 2\}$.



(d) Not a function.