1.3 Introduction to Functions

- A relation in which each \( x \)-coordinate is matched with only one \( y \)-coordinate is said to describe \( y \) as a **function** of \( x \).
  - The set of \( x \)-coordinates of the points on the function is known as the **Domain** of the function
  - The set of \( y \)-coordinates of the points on the function is known as the **Range** of the function

**Examples:**

1. Determine if the following relations are functions or not.
   - (a) \{ (0, 0), (1, 0), (2, 2), (3, 8) \}
   - (b) \{ (0, 0), (4, 7), (2, 1), (3, 1), (2, 5) \}

2. Determine if the following are the graphs of functions or not.

  (a) 
  (b) 

\[ y \\
\]
\[ -4 \quad -2 \quad 2 \quad 4 \quad 6 \]
\[ x \\
\]
3. Determine whether or not the equation represents $y$ as a function of $x$.

(a) $y^2 = x^2 + 4y$

(b) $x^2 + y^3 = 1$

(c) $\frac{2x - 1}{y} = \frac{x}{7}$