## Domain & Range

### Essential Question:
What is the domain and what is the range of a relation?

### Vocabulary:
- **Domain:** the set of all input (x) values for a relation
- **Range:** the set of all output (y) values for a relation

### How are domain & range written?

**For a Discrete Graph (points):** the values are listed in order as a set

**Example:**

- Domain: \( \{ -2, 0, 3 \} \)
- Range: \( \{ -2, 1, 2 \} \)

**For a Continuous (connected) Graph:** an inequality is written

**Examples:**

- **Domain:** \( x \geq -3 \)
  - all x values greater than or equal to -3
- **Range:** \( y \leq 3 \)
  - all y values less than or equal to 3

- **Domain:** \( -4 < x \leq 3 \)
  - all x values greater than -4 and less than or equal to 3
- **Range:** \( -2 < y \leq 5 \)
  - all y values greater than -2 and less than or equal to 5
Guided Practice: State the domain and range for each relation below.

1. \{(-2, 4), (-1, 2), (0, 0), (1, 2), (2, 4)\}
   Domain: 
   Range: 

2. 
   \[
   \begin{array}{|c|c|}
   \hline
   \text{Input} & \text{Output} \\
   \hline
   -5 & -4 \\
   -2 & -2 \\
   0 & 1 \\
   1 & -1 \\
   1 & 3 \\
   \hline
   \end{array}
   \]
   Domain: 
   Range: 

3. 
   \[
   \begin{array}{|c|c|}
   \hline
   \text{Input} & \text{Output} \\
   \hline
   -5 & -5 \\
   -2 & -3 \\
   1 & 2 \\
   4 & 0 \\
   \hline
   \end{array}
   \]
   Domain: 
   Range: 

4. 
   Domain: 
   Range: 

More examples to come in Part 2