

# Ratings encoding

In the table below, each row represents a user’s ratings of movies: ✓ (check) indicates the person liked the movie, ✕ (x) that they didn’t, and • (dot) that they didn’t rate it one way or another (neutral rating or didn’t watch).

| Person | Fyre | Frozen II | Picard | Ratings written as a 3-tuple |
|--------|------|-----------|--------|------------------------------|
| $P_1$  | ✕    | •         | ✓      |                              |
| $P_2$  | ✓    | ✓         | ✕      |                              |
| $P_3$  | ✓    | ✓         | ✓      |                              |
| $P_4$  | •    | ✕         | ✓      |                              |

# Defining sets

To define a set using **roster method**, explicitly list its elements. That is, start with  $\{$  then list elements of the set separated by commas and close with  $\}$ .

To define a set using **set builder definition**, either form “The set of all  $x$  from the universe  $U$  such that  $x$  is ...” by writing

$$\{x \in U \mid \dots x \dots\}$$

or form “the collection of all outputs of some operation when the input ranges over the universe  $U$ ” by writing

$$\{\dots x \dots \mid x \in U\}$$

We use the symbol  $\in$  as “is an element of” to indicate membership in a set.

**Example sets:** For each of the following, identify whether it’s defined using the roster method or set builder notation and give an example element.

$$\{-1, 1\}$$

$$\{0, 0\}$$

$$\{-1, 0, 1\}$$

$$\{(x, x, x) \mid x \in \{-1, 0, 1\}\}$$

$$\{\}$$

$$\{x \in \mathbb{Z} \mid x \geq 0\}$$

$$\{x \in \mathbb{Z} \mid x > 0\}$$

$$\{\mathbf{A}, \mathbf{C}, \mathbf{U}, \mathbf{G}\}$$

$$\{\mathbf{AUG}, \mathbf{UAG}, \mathbf{UGA}, \mathbf{UAA}\}$$