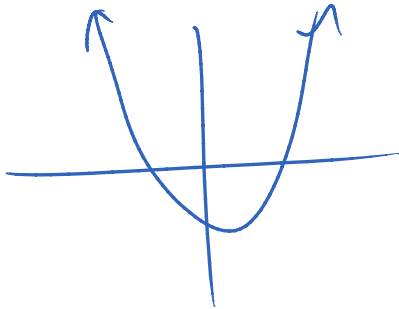# 1.2 Big ideas: Describing graphs

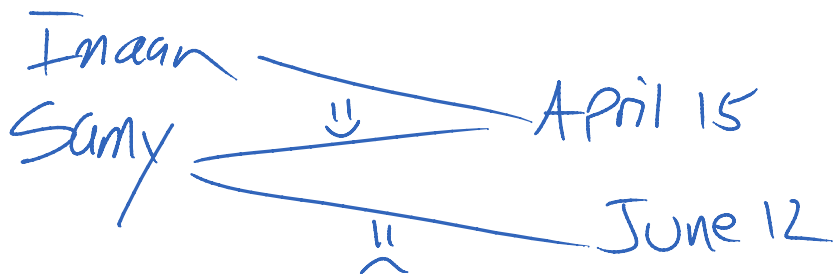## Day 1

Relation: inputs and outputs

Function: Each input(x) has exactly one output(y)

* Vertical line test

Birthdays

Inaan — April 15
Samy — June 12

Domain: The possible x-values

Common errors The restrictions on our inputs (if any)

* 1. All radicals ($\sqrt{}$) must be ≥ 0

2. Denominators $\neq 0$

3. A radical in the denominator > 0

Day 2

Range : Possible outputs(y)

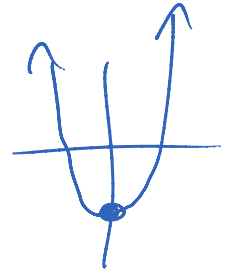Range : Possible outputs (y)

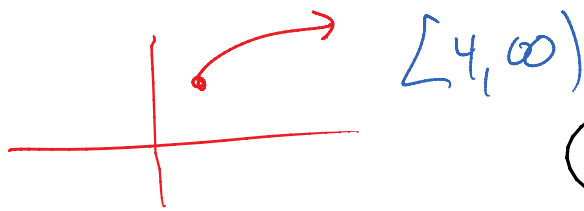Restrictions on The outputs
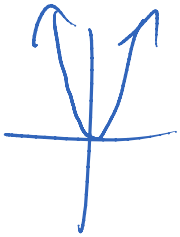
$y = x^2$

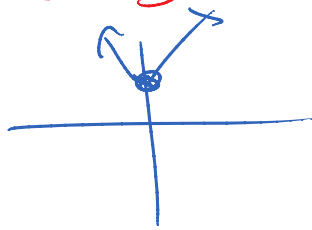R: $[0, \infty)$

$y = x^2 - 7$

$y \geq -7$

$[-7, \infty)$

① $y = 4 + \sqrt{x-3}$

$[4, \infty)$

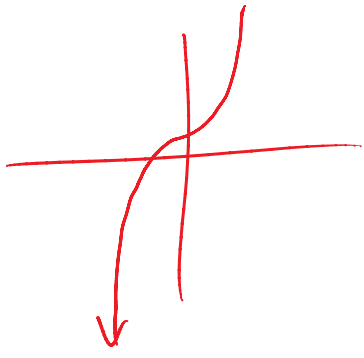② $y = \dfrac{x}{1+x^2}$

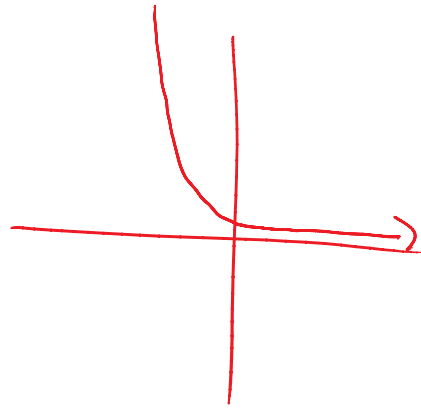$-.5 \leq y \leq .5$

③ $y = |x| + 7$

$y \geq 7$

$[7, \infty)$
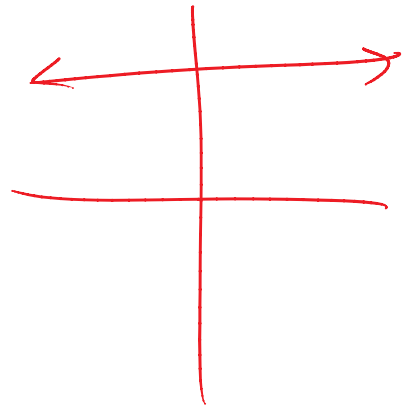
Part II Increasing, Decreasing, Constant

* We "look at" outputs (y's), but we write our answer in terms of The inputs (x)

Always move left to Right.

Increasing

Decreasing

Constant