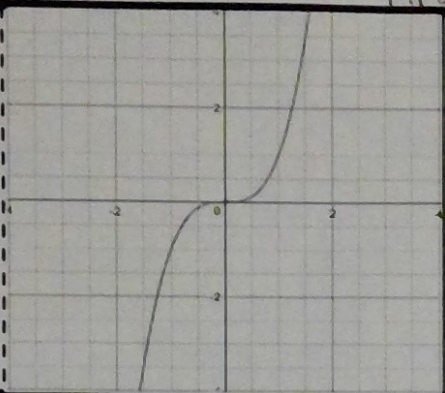


Interval Notation

[] included values
 () values not included

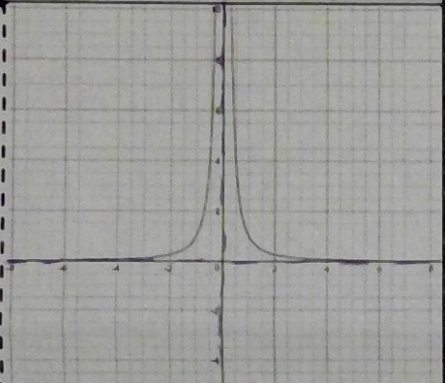
$(-\infty, 1) \cup (1, \infty)$
 union of 2 sets (,)
 Ex: $x > 4 \rightarrow (4, \infty)$ with $\pm \infty$
 $-1 \leq x \leq 20 \rightarrow [-1, 20]$
 $x \leq 10 \rightarrow (-\infty, 10]$



D: $(-\infty, \infty)$
 R: $(-\infty, \infty)$
 no extrema

Domain and Range

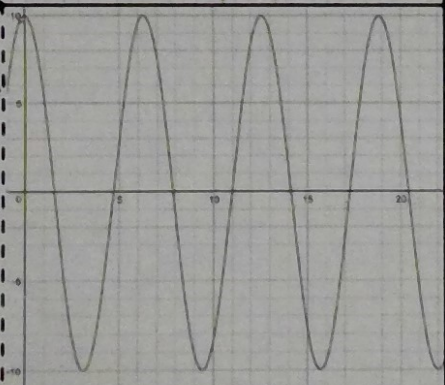
Domain: all possible x-values for a function
 Range: all possible y-values for a function
 *Note: We will always write in interval notation



D: $(-\infty, 0) \cup (0, \infty)$
 R: $(0, \infty)$
 no extrema

Algebraic Domain

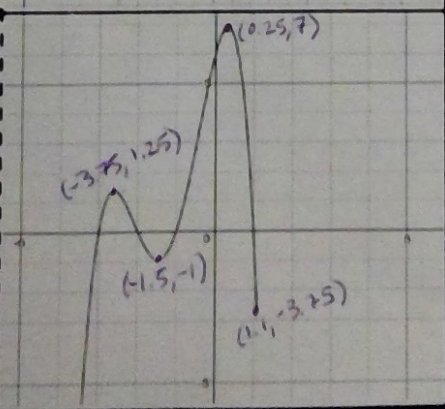
Look for operations w/ restrictions!
 Ex $y = \sqrt{x-1}$ can't square root + neg
 $x-1 \geq 0$ Domain: $[1, \infty)$
 $x \geq 1$
 Ex $f(x) = \frac{1}{x^2-5x}$ Domain:
 $x^2-5x \neq 0$ $(-\infty, 0) \cup (0, 5) \cup (5, \infty)$
 $x(x-5) \neq 0$ $x \neq 0, 5$



D: $(-\infty, \infty)$
 R: $[-10, 10]$
 absolute max: 10
 absolute min: -10

Extrema (max + min)

(Relative)
 Local min/max: The lowest/highest point on a given interval of the function.
 Absolute min/max: The lowest/highest point on a function over the entire domain.



D: $(-\infty, 1.1]$
 R: $(-\infty, 7]$
 absolute max: 7
 local max: 1.25
 local min: -1
 local min: -3.75