

# 1.3 Graphs of functions 09/10/15

Domain -

The domain of a function consists of every real number unless it leads to the following:

- division by zero: ~~und~~  $\frac{3}{0}$
- square root of a negative number:  ~~$\sqrt{-4} = \pm 2i$~~

Ex.

①

$$f(x) = \frac{x^2 - 6x}{x - 1}, \text{ find the domain}$$

$\swarrow$  cannot = 0

steps:

- ① set denominator equal to zero
- ② solve for x.

$$\begin{array}{r} x - 1 = 0 \\ \hline +1 \quad +1 \\ \hline x \neq 1 \end{array}$$

D: All real numbers,  $x \neq 1$

Ex. 2

Find the domain:

$$g(x) = \sqrt{x+2}$$

has to be  
← positive

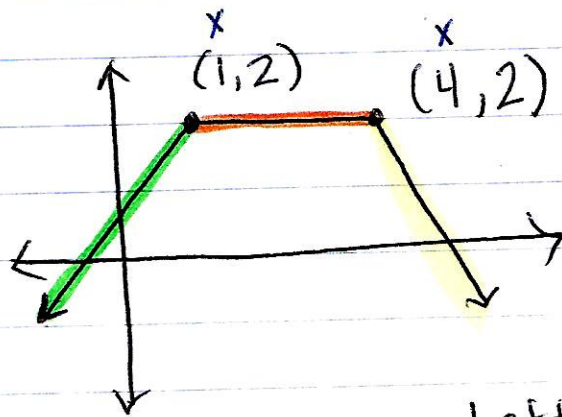
$$\begin{array}{r} x + 2 \geq 0 \\ -2 \quad -2 \\ \hline x \geq -2 \end{array}$$

① Set up inequality

② Solve for x

Domain  $x \geq -2$

EX 3.



Left to Right

\* Increasing  $(-\infty, 1]$

\* constant  $[1, 4]$

\* Decreasing  $[4, \infty)$