

September 25, 2017

Functions

\* Some Terms

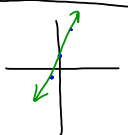
① Relations: a set of Ordered pairs.  
 $(x, y) \rightarrow \begin{array}{c} y \\ \uparrow \\ x \end{array}$   
 $(a, b)$

② Functions: is a Relation, let's call it "f" where an element from a set "A" is "maps" to one-and-only-one element in a set "B".

Sep 25-8:03 AM

"f"

Input  $x_s$   $\rightarrow$  a Rule  
 $3x+2$   $\rightarrow$  output  $y_s$  or  $f(x)$

$\begin{array}{c} 2 \\ -1 \\ 0 \end{array}$   $\rightarrow$  

$\begin{array}{c} 8 \\ -1 \\ 2 \end{array}$

(Domain)  $(-\infty, \infty)$       (Range)

Sep 25-8:13 AM

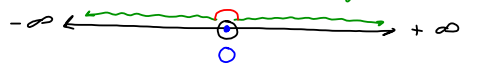
"g"

$x$   $\rightarrow$   $\frac{1}{x}$   $\rightarrow$   $g(x)$

$\begin{array}{c} 1 \\ 2 \\ 3 \\ 0? \\ -1 \\ -5 \end{array}$

$\begin{array}{c} 1/2 \\ 1/3 \\ \text{und} \\ -1 \\ -1/5 \end{array}$

Domain:  $(-\infty, 0) \cup (0, \infty)$



Sep 25-8:28 AM

$f(x) = \frac{x+1}{x-5} \neq 0$

what is the Domain of "f"?

$x-5 \neq 0$   
 $x \neq 5$   
 But  $x \neq 5$   
 $D: (-\infty, 5) \cup (5, \infty)$

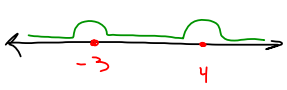
Sep 25-8:41 AM

$g(x) = \frac{x}{x^2 - x - 12} = 0$

$(x-4)(x+3) = 0$

Domain:  $(-\infty, -3) \cup (-3, 4) \cup (4, \infty)$

①  $x-4=0$   $x=4$   
 ②  $x+3=0$   $x=-3$



Sep 25-8:45 AM