

September 19, 2016  
 \* Wednesday's quiz is on finding domain

Sep 19-1:23 PM

• Relations: ordered pairs  
 • Functions: where each member of the domain ( $x$ ) is paired with exactly one member of the range ( $y$ )  
 $(x, y)$   
 ↑  
 Domain all valid  $x$  inputs

Sep 19-1:25 PM

Domain

$x$		$(-\infty, \infty)$
$x^2$		$(-\infty, \infty)$
$x^3$		$(-\infty, \infty)$
$x^4$		$(-\infty, \infty)$
$x^5$		$(-\infty, \infty)$
* $\frac{1}{x}; x \neq 0$		$(-\infty, 0) \cup (0, \infty)$
* $\sqrt{x}; x \geq 0$		$[0, \infty)$
$\sqrt[3]{x}$		$(-\infty, \infty)$

Sep 19-1:29 PM

Finding Domain

- $f(x) = 2x$      $D: (-\infty, \infty)$
- $g(x) = x^2 + 1$      $D: (-\infty, \infty)$
- $s(t) = \frac{1}{t-3}$      $D: (-\infty, 3) \cup (3, \infty)$   
 $t-3=0$   
 $t=3$  }  $\rightarrow t \neq 3$   
 $s(3) = \frac{1}{(3)-3} = \frac{1}{0}$  *und!*  
 $s(0) = \frac{1}{(0)-3} = -\frac{1}{3}$      $(0, -\frac{1}{3})$

Sep 19-1:42 PM

⑤  $f(x) = \sqrt{x-5} \geq 0$   
 $x \geq 5$   
  
 $D: [5, \infty)$   
 $f(5) = \sqrt{5-5} = \sqrt{0} = 0$  }  $(5, 0)$   
 $f(4) = \sqrt{4-5} = \sqrt{-1}$   $\rightarrow$  *Not a Real Number!*

Sep 19-1:50 PM

④  $f(b) = \frac{b+2}{b^2-1}$   
 $b^2-1=0$   
 $\sqrt{b^2} = \pm\sqrt{1}$   
 $b = \pm 1$  }  $b \neq \pm 1$   
  
 $D: (-\infty, -1) \cup (-1, 1) \cup (1, \infty)$

Sep 19-2:02 PM

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

①  $x+2=0$   
 $x=-2 \rightarrow x \neq -2$

②  $\sqrt{x-2}$   
 $x-2 \geq 0$   
 $x \geq 2$

D:  $[2, \infty)$

Sep 19-2:22 PM

$$f(x) = \frac{x}{\sqrt{x+1}}$$

①  $x+1 \geq 0$   
 $x \geq -1$

②  $x \neq -1$

$(-1, \infty)$

Sep 19-2:25 PM