

# WELCOME TO CALCULUS!

## Functions

$$f(x) = \frac{2x}{(x-3)(x+4)}$$

$$f(x) = \sqrt{x^2 - 9}$$

~~$\frac{+}{-3} - \frac{+}{3}$~~   $(x+3)(x-3)$   
 $(-\infty, -3] \cup$

$$f(x) = \sqrt[3]{x^2 - 9} \quad [3, \infty)$$

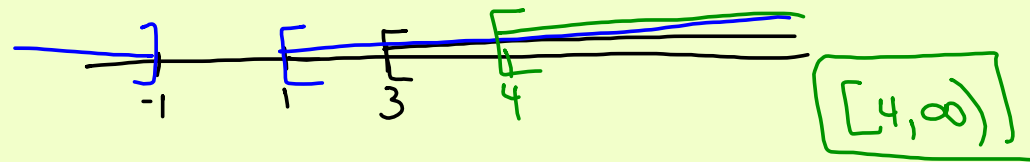
Type	Restrictions	Method
Rational (Fraction)	Denom $\neq 0$	$x \neq 3, -4$
Even Root	must have + values	Testing Pts.
Odd Root	No Root	$\mathbb{R}$

$$f(x) = \sqrt{x-3}$$

$$g(x) = \sqrt{x^2 - 1}$$

$$(g \circ f)(x) = \sqrt{(\sqrt{x-3})^2 - 1}$$

$$= \sqrt{x-3-1} = \sqrt{x-4}$$



$$13/ \quad f(x) = 3x^4 - 10 \quad [-2, 2] \times [-10, 15]$$

(Window  $x_{\min}, x_{\max}$        $y_{\min}, y_{\max}$ )

Domain of graph: Look L to R

Range of graph: Low to High

$$55/ \quad (a) \quad (f \circ g)(2)$$

$$g(2) = 2 \quad \leftarrow \text{y-word}$$

$$f(2) = \boxed{4}$$