

Precalculus

12-02 Evaluating Limits

Indeterminant Form

$$\lim_{x \rightarrow c} f(x) = \frac{0}{0}$$

Dividing out technique

1. _____
2. _____ common factors
3. Then find the _____

Evaluate $\lim_{x \rightarrow 3} \frac{x^2 - 8x + 15}{x - 3}$

Rationalizing Technique

- Get _____ out of _____
- _____ by _____ of _____

Evaluate $\lim_{x \rightarrow 0} \frac{\sqrt{x+9}-3}{x}$

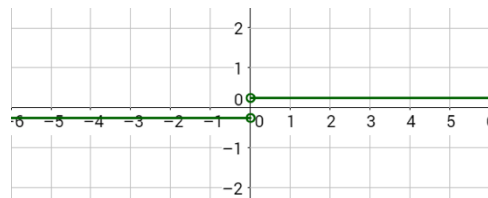
One-sided Limits

- Limit found from only _____ direction
- $\lim_{x \rightarrow c^-} f(x)$ - from _____
- $\lim_{x \rightarrow c^+} f(x)$ - from _____

Evaluate

$$\lim_{x \rightarrow 0^-} \frac{|x|}{4x}$$

$$\lim_{x \rightarrow 0^+} \frac{|x|}{4x}$$



A limit from calculus

$$\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

- _____ gives indeterminate case

For the function $f(x) = 2x^2 + 1$ find $\lim_{h \rightarrow 0} \frac{f(2+h) - f(2)}{h}$