

**Determining Limits Algebraically:**

- Step #1: Substitute the number that x is approaching INTO the equation!
- If substitution yields...
  - A number, then you are done! ☺
  - A number divided by zero will yield a vertical asymptote (we discussed those yesterday)
  - ZERO divided by ZERO then we will use known limits, graphs, or factoring/rationalizing in order to determine the limit.

**Lots of Examples:** The first four are the easiest type....

$\lim_{x \rightarrow 2} 3 =$	$\lim_{x \rightarrow -4} x =$
$\lim_{x \rightarrow 2} (4x^2 + 3) =$	$\lim_{x \rightarrow \pi} (\sin x) =$
$\lim_{x \rightarrow 1} \left( \frac{x^2 - 1}{x - 1} \right) =$	
$\lim_{x \rightarrow -3} \frac{x^2 + x - 6}{x + 3} =$	

$$\lim_{x \rightarrow 2} \frac{2-x}{x^2-4} =$$

$$\lim_{x \rightarrow 5} \frac{x^2+5x}{x+5} =$$