

2.2: The Limit of a Function

Begin by exploring $f(x) = \frac{x-3}{x^2-x-4}$ for
x values near $x=3$.

Q: Can we evaluate $f(3)$?

Def: We write $\lim_{x \rightarrow a} f(x) = L$

and say, "the limit of $f(x)$, as x approaches
 a , equals L "

if we can make the values of $f(x)$
arbitrarily close to L by taking x
sufficiently close to a , but not equal to a .

Look @ the mathematical examples.

Three good examples from the text

$$(a) \lim_{x \rightarrow 0} \frac{\sqrt{x^2+16} - 4}{x^2}$$

$$(b) \lim_{x \rightarrow 0} \frac{\sin x}{x}$$

$$(c) \lim_{x \rightarrow 0} \sin\left(\frac{\pi}{x}\right)$$

Introduce one sided limits & their
connection to limits.

Introduce infinite limits.

- Graphical examples
- Numerical examples.