Basic Idea of Limits

Consider $y = x - 4$

If we put in numbers close to 5
we get out numbers close to 1.

$\lim_{x \to 5} x - 4 = 1$ ← The output is the limit of the function.

The limit of $x - 4$
as x approaches 5
gets closer to 1

$\lim_{x \to a} f(x) = L$ ← The output is the limit of the function.

The limit of $f(x)$
as x approaches a
gets closer to L

Limit Cases

$\lim_{x \to a} f(x)$

↖ x approaches a finite number here

$\lim_{x \to \pm\infty} f(x)$

↗ x approaches positive or negative infinity

Some outputs

$\left(\frac{0}{0}\right)$

$\left(\frac{\text{nonzero}}{\text{zero}}\right)$

Techniques of Solving Limits

a. Factor
b. Common Denominator
c. Expand
d. Multiply by conjugate (radical)
e. Trig Identities
f. Others...