

$$\lim_{x \rightarrow \pm\infty} f(x) = L$$

$$\left(\lim_{x \rightarrow -\infty} f(x) = L \right)$$

means that no matter how close we desire $f(x)$ to be to L , they will be that close provided x is a sufficiently large ~~in~~ positive (negative) number.

Example:

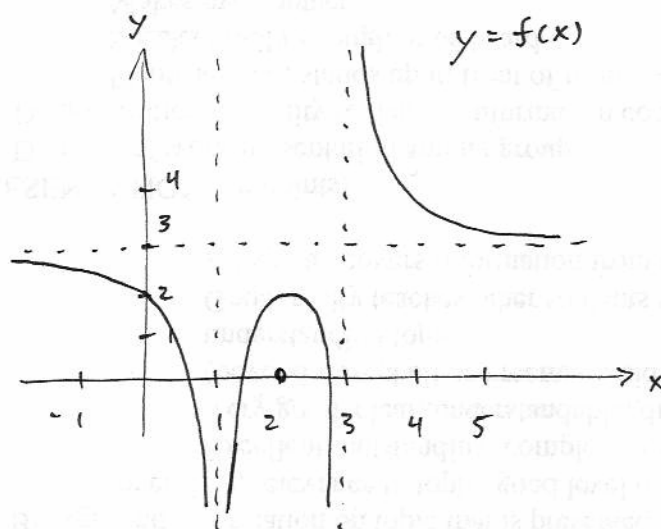
$$\lim_{x \rightarrow \infty} \frac{3x^2 + x}{6x^2 - 1} = \frac{3}{6} = \frac{1}{2}$$

$$\lim_{x \rightarrow -\infty} \arctan(x) = -\frac{\pi}{2}$$

$$\lim_{x \rightarrow -\infty} e^{+x}$$

$$\lim_{x \rightarrow +\infty} e^x$$

$$\lim_{x \rightarrow \infty} \sin(x)$$



$$\lim_{x \rightarrow 1} f(x)$$

$$\lim_{x \rightarrow \infty} f(x)$$

$$\lim_{x \rightarrow 3^-} f(x)$$

$$\lim_{x \rightarrow -\infty} f(x)$$

$$\lim_{x \rightarrow 3^+} f(x)$$