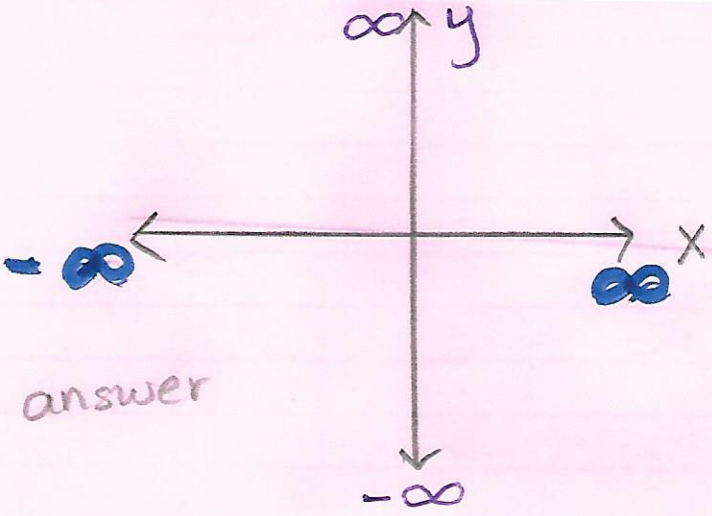
# End Behavior

11/06-09/15

Describing the behavior of the graph of a function as $x$ approaches the extreme left $(-\infty)$ or extreme right $(\infty)$.

What does the curve do at the outer limit?




**Infinitely going right**

$\lim_{x \to -\infty} f(x) =$ answer

**Infinitely going left**

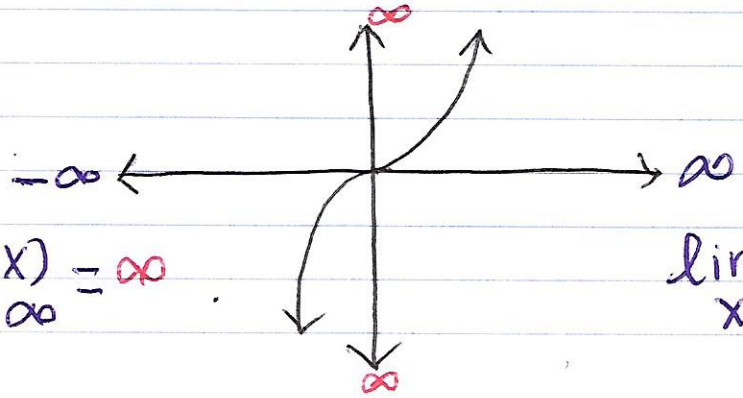
$\lim_{x \to \infty} f(x) =$ answer

## Same result for BOTH directions

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

only use this if the answer is the same for both

Ex. $f(x) = x^3$

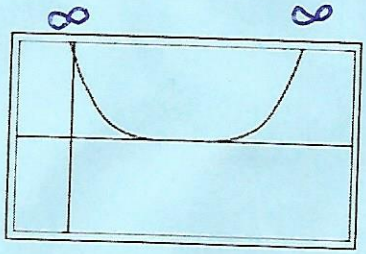


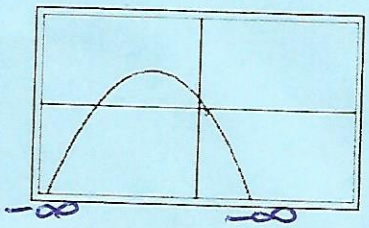

$\lim_{x \to -\infty} f(x) = \infty$

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

# Examples

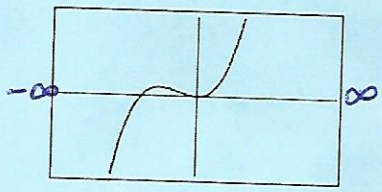
$\lim_{x \to \pm\infty} f(x) = \infty$



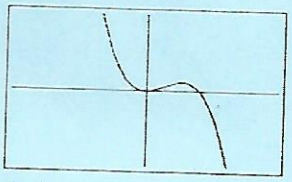

$\lim_{x \to \pm\infty} f(x) = -\infty$

$\lim_{x \to -\infty} f(x) = -\infty$



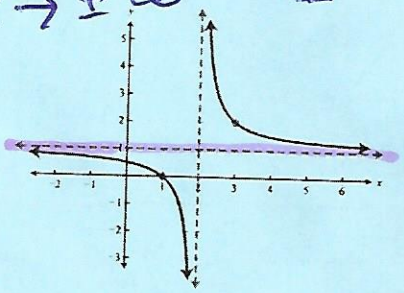

$\lim_{x \to \infty} f(x) = \infty$

$\lim_{x \to -\infty} f(x) = \infty$

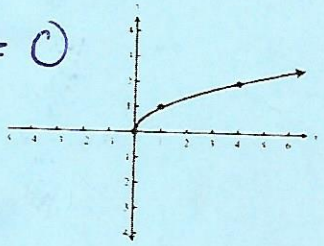


$\lim_{x \to \infty} f(x) = -\infty$

$\lim_{x \to \pm\infty} f(x) = 1$



$\lim_{x \to 0} f(x) = 0$



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