

## Notation

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

Read: The limit as  $x$  approaches  $c$  of  $x$  is equal to  $L$ .

Note:  $c$  is an  $x$  value and  $L$  is a  $y$  value.

# LIMITS

## Numerical

### Approach

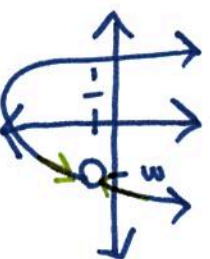
- Create a table of values
- Pick  $x$  values that are close to  $c$  on either side of  $c$ .
- Make sure that the limit from the left = the limit from the right.
- Your answer is the  $y$  value that  $f(x)$  approaches.

## Analytical Approach

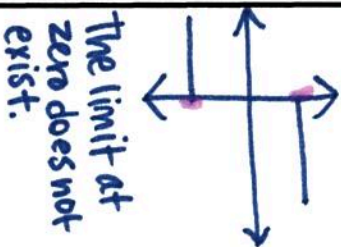
- Direct Sub.
- Factor & Reduce
- Trig ID's if necessary
- Rationalization Technique
- Long Division
- Using Algebra

## Graphical

### Approach



The limit as  $x$  approaches 3 is  $-1$ .



The limit at zero does not exist.

The limit is the  $y$  value of the function at the  $c$  value you are investigating. - make sure the  $\lim$  from the left = the  $\lim$  from the rt