

In first year Calculus, we define intervals such as  $(u,v)$  and  $(u,\infty)$ . Such an interval is a *neighborhood* of  $a$  if  $a$  is in the interval. Students should realize that  $\infty$  is only a symbol, not a number. This is important since we soon introduce concepts such as .

When we introduce the derivative

we assume that the function is defined and continuous in a neighborhood of  $a$ .