## CONTINUOUS EXTENSION OF f(x) to x=c

- A function may have a limit even at a point where it is not defined. If f(c) is not defined, but $\lim_{x\to c} f(x) = L$ exists, we can define a new function F(x) by the rule:

$$F(x)=\begin{cases} f(x), & if\ x\ is\ in\ the\ domain\ of\ f(x) \\ L, & if\ x = c \end{cases}$$

- F(x) is called the continuous extension of f to x=c.

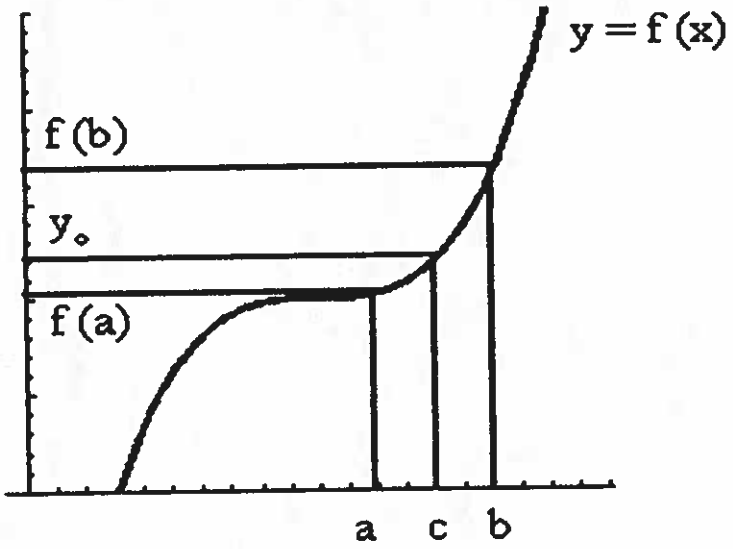
## COMPOSITES

THEOREM:

- If f is continuous at c and g is continuous at f(c), then the composite g(f(c)) is continuous at c.

## THE INTERMEDIATE VALUE THEOREM for continuous functions.

- A function y=f(x) that is continuous on a closed interval $\langle a, b\rangle$ takes on every value between f(a) and f(b). In other words, if $y_0$ is any value between f(a) and f(b), then $y_0$=f(c) for some c in $\langle a, b\rangle$.




**Describe REMOVABLE DISCONTINUITY:**

**Give a couple of examples of removable discontinuity:**

Textbook p84-86 #1-16, # 19, 21, 23, 27,29, #33-36 (#41-50 as many as you can) and #54-59