

AP Calculus-AB
Notes: Continuity

Limits, Continuity, & R.O.C Day 5

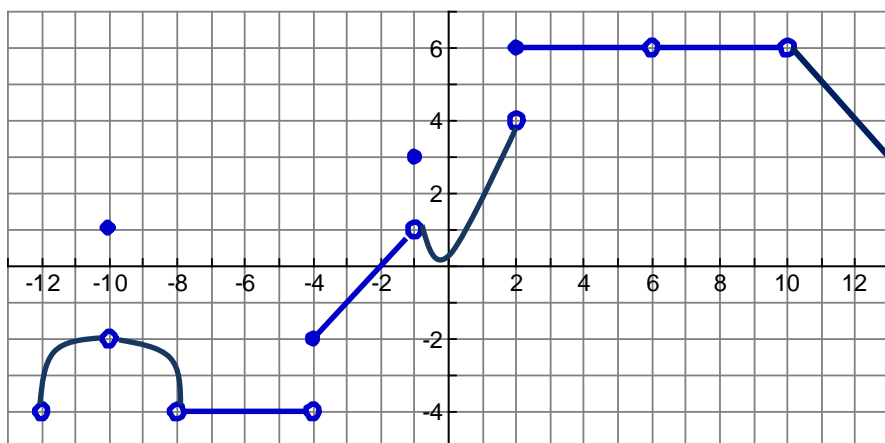
Continuity: For a function to be continuous at a point 3 conditions must be met at $x = a$.

- 1.
- 2.
- 3.

	Yes	No
1.		
2.		
3.		

Example(s) 1:

State all the places the following function is discontinuous and tell why it is discontinuous.



Where Discontinuous	Why


Example(s) 2:

Determine if each are continuous everywhere. If yes use the 3 step method to prove. If no state where discontinuous and why.

A.) $f(x) = \begin{cases} x^2, & \text{for } x > 2 \\ 2x, & \text{for } x \leq 2 \end{cases}$

B.) $f(x) = \begin{cases} 2x+3, & \text{for } x \geq 0 \\ -2x-1, & \text{for } x < 0 \end{cases}$

C.) $f(x) = \begin{cases} x^2+3, & \text{for } x > -1 \\ 2x+6, & \text{for } x < -1 \\ 2, & \text{for } x = -1 \end{cases}$

 Removable v/s Non-removable Discontinuities:

 Removable:

 Non-removable:

Continuous Functions

Non-continuous Functions

Example(s) 3:

Determine if each are continuous everywhere. If yes use the 3 step method to prove. If no state where discontinuous and what kind of discontinuity.

A.) $f(x) = \frac{3}{x+2}$

B.) $f(x) = \frac{(x+3)(x+5)}{(x+2)(x+3)}$

C.) $f(x) = \begin{cases} x^3, & \text{for } x \geq 2 \\ 2x+3, & \text{for } x < 2 \end{cases}$