

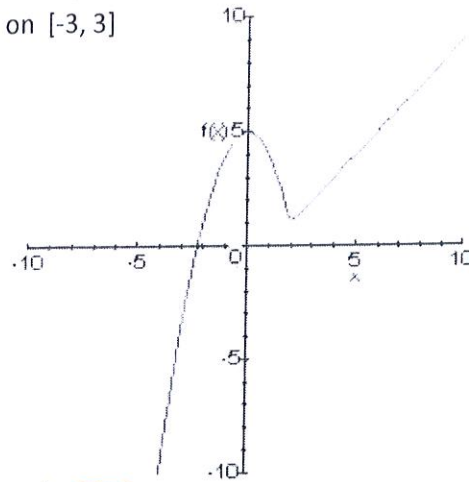
Can the Mean Value Theorem be used on the following functions over the given interval?

If no, explain why. If yes, find the value "c" that satisfies the MVT.

a. $f(x) = \frac{3x-2}{x+1}$; on $[-5, 5]$

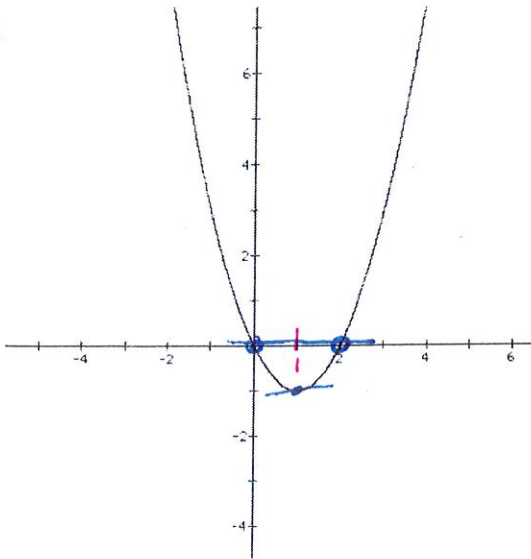
no - ~~f(x)~~ is not continuous at $x = -1$ (which is in the interval)

b. on $[-3, 3]$



no $f(x)$ is not differentiable at $x = 2$ (which is in the interval)

c.



on $[0, 2]$

yes

$x = 1$ (solve graphically)

d. $g(x) = -\frac{1}{2}x^2 - 2x - 1$; on $[-1, 1]$

yes (solve algebraically)

$$g'(x) = \frac{g(1) - g(-1)}{1 - (-1)}$$

$$-x - 2 = \frac{-3.5 - 0.5}{2}$$

$$-x - 2 = -2$$

$$-x = 0$$

$$\boxed{x = 0}$$