												,										
												,										
												,										
L	A	S	T		N	A	M	E	S			,	F	I	R	S	T		N	A	M	E	S

MATH 2301 GW15: Analyzing a Polynomial

A **partition number** for a function $g(x)$ is an x value where $g(x) = 0$ or g is *discontinuous*
Remark: A function $g(x)$ can only *change sign* at its *partition numbers*.

Let $f(x) = x^3 - 3x^2 - 9x - 5 = (x+1)^2(x-5)$

(a) Find the partition numbers for $f(x)$.

(b) Make a sign chart for $f(x)$.

A **critical number** for a function $f(x)$ is an x value $x = c$ that has these two properties:
(1) $x = c$ is a *partition number* for $f'(x)$. That is, $f'(c) = 0$ or f' is *discontinuous* at $x = c$.
(2) f is continuous at $x = c$.
Remark: A function $f(x)$ can only have *relative extrema* at its *critical numbers*.

Let $f(x) = x^3 - 3x^2 - 9x - 5 = (x+1)^2(x-5)$

(c) Find the critical numbers for $f(x)$.

(d) Make a sign chart for $f'(x)$.