Derivative Relationships on an interval (a, b)

		f' is positive on (a, b)	$\rightarrow$	f is increasing on (a, b)
		f' is negative on (a, b)	$\rightarrow$	f is decreasing on (a, b)
		f' is zero on (a, b)	$\leftrightarrow$	f is constant on (a, b)
f'' is positive on (a, b)	$\rightarrow$	f' is increasing on (a, b)	$\rightarrow$	f is concave up on (a, b)
f'' is negative on (a, b)	$\rightarrow$	f' is decreasing on (a, b)	$\rightarrow$	f is concave down on (a, b)
f'' is zero on (a, b)	$\leftrightarrow$	f' is constant on (a, b)	$\leftrightarrow$	f is a straight line on (a, b)

Derivative Relationships at a particular $x = c$

		f' is positive at $x = c$	$\leftrightarrow$	The line tangent to the graph of f at $x = c$ slopes upward.
		f' is negative at $x = c$	$\leftrightarrow$	The line tangent to the graph of f at $x = c$ slopes downward.
		f' is zero at $x = c$	$\leftrightarrow$	The line tangent to the graph of f at $x = c$ is horizontal.
f'' is positive at $x = c$	$\leftrightarrow$	The line tangent to the graph of f' at $x = c$ slopes upward.	$\rightarrow$	f is concave up at $x = c$
f'' is negative at $x = c$	$\leftrightarrow$	The line tangent to the graph of f' at $x = c$ slopes downward.	$\rightarrow$	f is concave down at $x = c$
f'' is zero at $x = c$	$\leftrightarrow$	The line tangent to the graph of f' at $x = c$ is horizontal.		