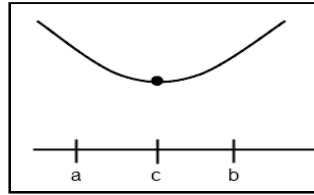


## CRITICAL POINTS & EXTREMA OF CONTINUOUS FUNCTIONS

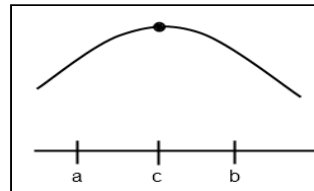
**CASE I:** Relative Minimum (typical)

$x$	$a$	$c$	$b$
$f'(x)$	$-$	$0$	$+$
slope	$\backslash$	$-$	$/$



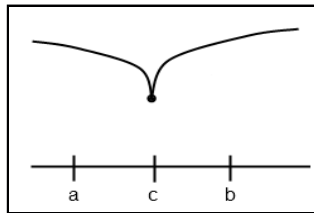
**CASE II:** Relative Maximum (typical)

$x$	$a$	$c$	$b$
$f'(x)$	$+$	$0$	$-$
slope	$/$	$-$	$\backslash$



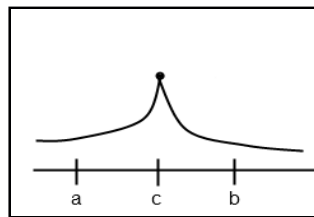
**CASE III:** Relative Minimum (cusp)

$x$	$a$	$c$	$b$
$f'(x)$	$-$	DNE	$+$
slope	$\backslash$	$ $	$/$



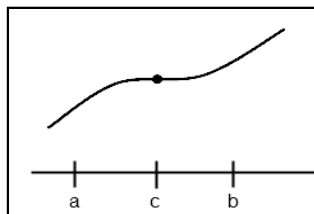
**CASE IV:** Relative Maximum (cusp)

$x$	$a$	$c$	$b$
$f'(x)$	$+$	DNE	$-$
slope	$/$	$ $	$\backslash$



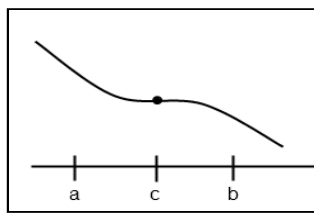
**CASE V:** Critical Point but NOT an Extremum

$x$	$a$	$c$	$b$
$f'(x)$	$+$	$0$	$+$
slope	$/$	$-$	$/$



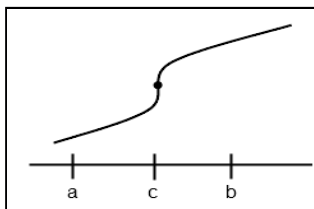
**CASE VI:** Critical Point but NOT an Extremum

$x$	$a$	$c$	$b$
$f'(x)$	$-$	$0$	$-$
slope	$\backslash$	$-$	$\backslash$



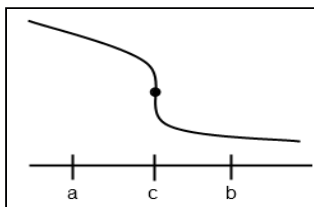
**CASE VII:** Critical Point but NOT an Extremum

$x$	$a$	$c$	$b$
$f'(x)$	$+$	DNE	$+$
slope	$/$	$ $	$/$



**CASE VIII:** Critical Point but NOT an Extremum

$x$	$a$	$c$	$b$
$f'(x)$	$-$	DNE	$-$
slope	$\backslash$	$ $	$\backslash$



## References

- [1] S. Tan, *Applied Mathematics for the Managerial, Life, and Social Sciences*. Brooks Cole, Belmont, CA, 5th Edition, 2008.