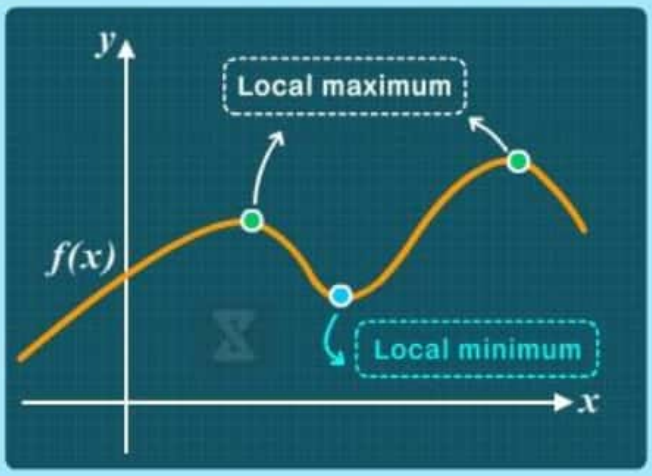
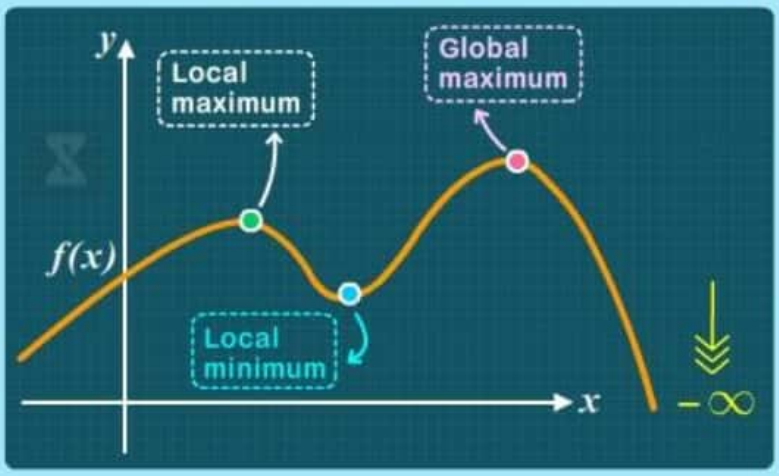
MAXIMA AND MINIMA

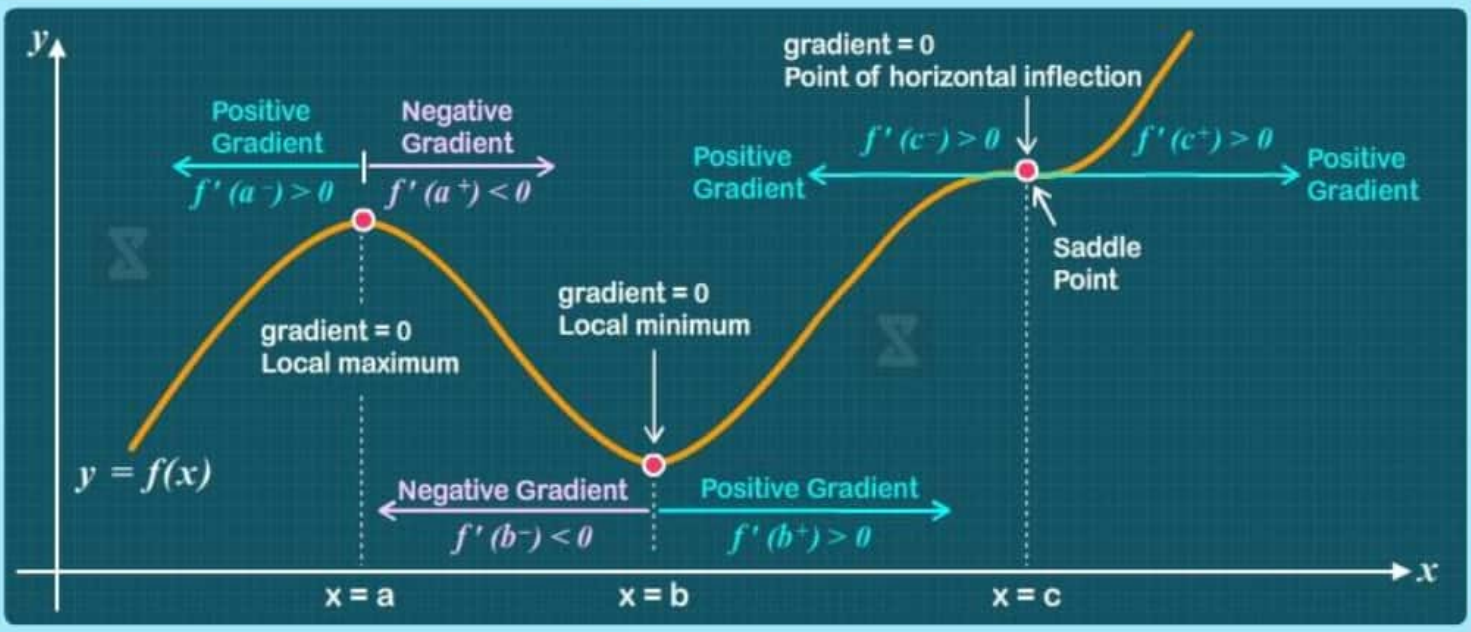
LOCAL MAXIMUM & MINIMUM



ABSOLUTE MAXIMUM & MINIMUM



FINDING MAXIMUM & MINIMUM



FIRST DERIVATIVE TEST

LOCAL MAXIMUM	$f'(a) = 0$	$f'(a^-) > 0$	$f'(a^+) < 0$
LOCAL MINIMUM	$f'(b) = 0$	$f'(b^-) < 0$	$f'(b^+) > 0$
SADDLE POINT	$f'(c) = 0$	$f'(c^-) > 0$	$f'(c^+) > 0$

- In general at saddle point (let $x = c$) $f'(c^+)$ and $f'(c^-)$ both are either positive or negative.

SECOND DERIVATIVE TEST

LOCAL MAXIMUM	$f'(a) = 0$	$f''(a) < 0$
LOCAL MINIMUM	$f'(b) = 0$	$f''(b) > 0$
SADDLE POINT	$f'(c) = 0$	$f''(c) = 0$

- In general at saddle point (let $x = c$) $f'(c) = f''(c) = \ldots\ldots = f^n(c) = 0$.