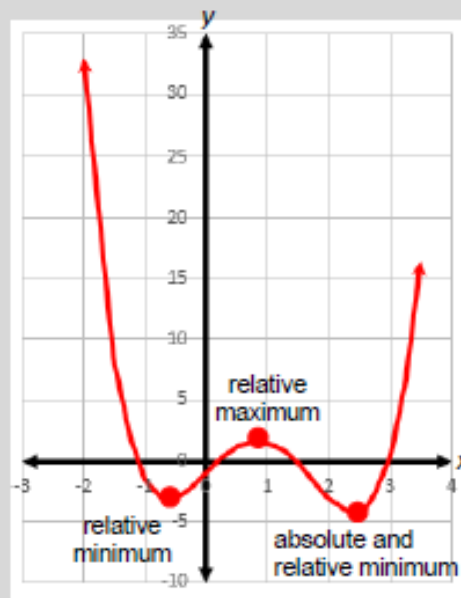# Extrema

The largest (maximum) and smallest (minimum) value of a function, either within a given open interval (the relative or local extrema) or on the entire domain of a function (the absolute or global extrema)

Example:

- A function, f, has an absolute maximum located at $x = a$ if $f(a)$ is the largest value of f over its domain.
- A function, f, has a relative maximum located at $x = a$ over some open interval of the domain if $f(a)$ is the largest value of f on the interval.
- A function, f, has an absolute minimum located at $x = a$ if f(a) is the smallest value of f over its domain.
- A function, f, has a relative minimum located at $x = a$ over some open interval of the domain if $f(a)$ is the smallest value of f on the interval.