Critical Points

<u>Critical Point</u> - A point $\left(x_0, f\left(x_0\right)\right)$ is called a critical point if:

a) x_0 is in the domain of f.

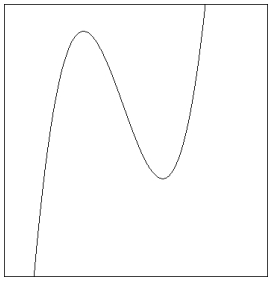
b) $f'\left(x_0\right)=0$ or $f'\left(x_0\right)$ does not exist.

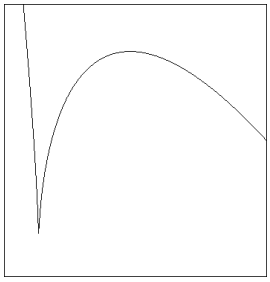
<u>Types of Critical Points:</u>

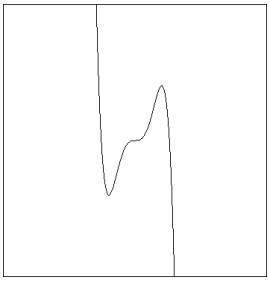
a) Relative Extrema/Relative Maximum Point - A, C, E

b) Relative Extrema/Relative Minimum Point - B, D, F

c) Terrace Point - A critical point that is not a relative extrema - G

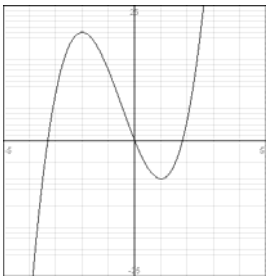




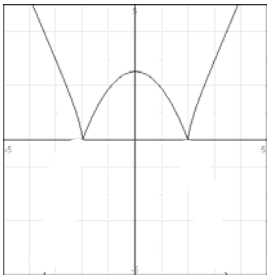


1. For each function, find the critical points of $f\left(x\right)$.

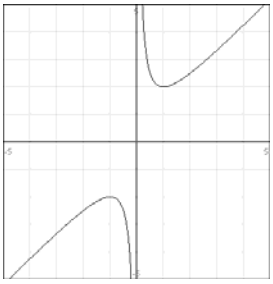
a) $f\left(x\right)=2x^3+3x^2-12x$



b) $f(x) = \left(x^2 - 4\right)^{\frac{2}{3}}$



c) $f(x) = x + \dfrac{1}{x}$



d) $f\left(x\right)=12x^{\frac{2}{3}}-4x$