

1. Determine the absolute maximum and minimum values of $f(x)=2x^3-3x^2$ over $(0,2)$

Solution:

$$f(x) = 2x^3 - 3x^2$$

$$\frac{df}{dx} = \frac{d(2x^3 - 3x^2)}{dx}$$

$$= 6x^2 - 6x$$

$$= 6x(x - 1)$$

IF $\frac{df}{dx} = 0$ then the critical points are 0 and 1

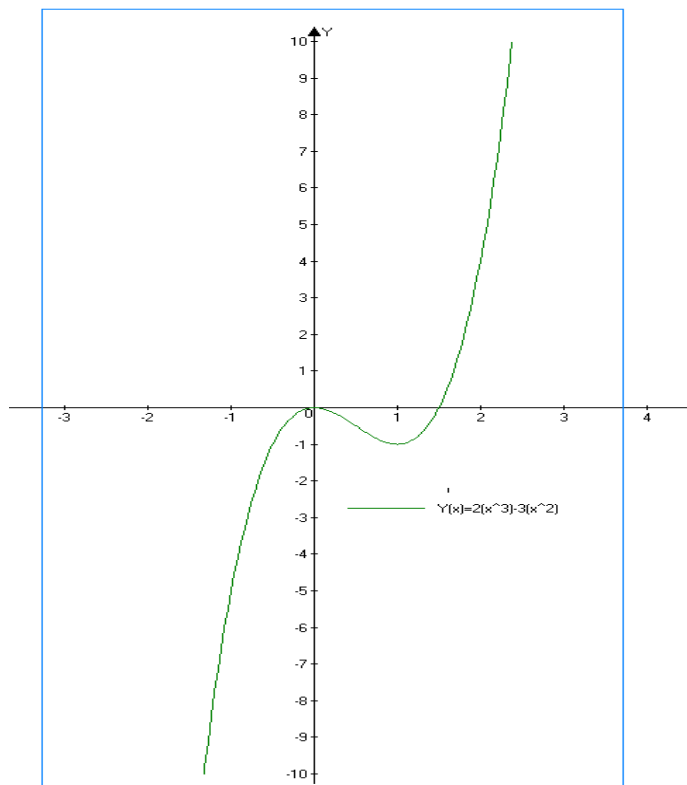
Now, we will evaluate the function at 1 only because, zero is not belongs to $(0, 2)$

$$F(1) = 2(1)^3 - 3(1)^2$$

$$= 2 - 3$$

$$= -1$$

Graph:



Therefore, the function is absolute minimum at $x = -1$.