Answer on Question #44969 – Math - Calculus

The critical value/s for y = x^3 – 3x^2 are

Solution.

$$y = x^3 - 3x^2$$

$$y' = 3x^2 - 6x = 3x(x-2)$$

$$y' = 0 \ \rightarrow \ x = 0 \ or \ x = 2$$

$$y'' = 6x, \qquad y''' = 6$$

$$y''(0) = 0\,, \qquad y'''(0) = 6 > 0, \ \ y''(2) = 12 > 0.$$

Hence, point $x = 0$ is a local maximum and point $x = 2$ is a local minimum.

$$y_{max} = y(0) = 0, \ y_{min} = y(2) = -4\,.$$