

## Finding Local Maxima and Minima on TI-83+

### Example:

Graph the function  $f(x) = x^3 - 3x^2 + 5$  over the interval  $(-1, 3)$  and find the local maxima and local minima.

Clear previously saved functions in the Y= window.

### Enter equation for Y1

$$y1 = x^3 - 3x^2 + 5$$

Set the viewing window for the specified interval  $(-1, 3)$

<b>Window</b>	
<b>xmin = -1</b>	<b>ymin = -10</b>
<b>xmax = 3</b>	<b>ymax = 10</b>
<b>xscl = 1</b>	<b>yscl = 1</b>

**Graph**

### To find the local maximum

**2<sup>nd</sup> Calc**  
**4:Maximum**  
**Left Bound?:**  
**Right Bound?:**  
**Guess?**

The cursor moves to the highest point and the coordinates are listed at the bottom of the screen.

The maximum value of 5 occurs when  $x = 0$ . (You may get a very small number which rounds to 0 such as  $-5.374905 \text{ E-}7$ )

### Repeat the process to find the local minimum

**2<sup>nd</sup> Calc**  
**3:Minimum**  
**Left Bound?:**  
**Right Bound?:**  
**Guess?**

The cursor moves to the lowest point and the coordinates are listed at the bottom of the screen.

The minimum value is 1 when  $x = 2$ .