1st Derivative Test: Min/Max turning points.

* Get $\frac{dy}{dx}$

* Let $\frac{dy}{dx} = 0$ and solve for x

* Take point to LEFT OF x and to RIGHT of x sub these into $\frac{dy}{dx}$ and solve

* Slopes positive to left and negative to right → Max Point

  negative to left and positive to right → Min Point.

2nd Derivative Test: Min/Max turning point

* Get dy/dx
* Let $dy/dx = 0$ and solve for x
* Get d^2y/dx^2
* sub in values for x
* where $d^2y/dx^2 < 0 \rightarrow$ Max point

  where $d^2y/dx^2 > 0 \rightarrow$ Min point.

Point of Inflection

* get dy/dx get d^2y/dx^2

* using d^2y/dx^2 solve for x

* Take point to LEFT of x and to RIGHT of x

* sub these values into d^2y/dx^2

* change in concavity

IF $d^2y/dx^2 < 0$ concave up

IF $d^2y/dx^2 > 0$ concave down