**Point of Inflection:**

The point where a graph changes from concave up to concave down (or vice versa).

Critical number!

****

****

Concave up: (0,)

Concave down: (-,0)

P.O.I: (0,0)

+

-

0

**F”(x)**

example

**Second Derivative Test**

1. Take the second derivative
2. Set it equal to zero
3. Find critical numbers
4. Make a number line with the critical numbers
5. Test the regions into the second derivative
6. Find points of inflection by plugging into the original

**Positive = Concave up**

**Negative = Concave down**

Increasing: (-U (1,)

Decreasing: (-1,1)

****

****

Plug into the original to get the y-coordinate

min

(1,-2)

max

(-1,2)

-

+

+

1

-1

**F’(x)**

Critical numbers!

example

**First Derivative Test**

1. Take the derivative
2. Set the derivative equal to zero
3. Solve for x
4. These are your critical numbers
5. Make a number line with your critical numbers
6. Test the regions into the first derivative
7. Find maxs/mins by plugging into the original