R·I·T School of Mathematical Sciences

4 - Second Partials Test

MATH 211

What can be said about the derivative of a function $y = f(x)$ on an interval where the function is increasing? Decreasing?

How do we determine relative extrema on the graph of a function $y = f(x)$?

The graph of a a function $y = f(x)$ is said to be concave _____ on an interval (a, b) when $f''(x) > 0$ for all x on that interval.

The graph of a a function $y = f(x)$ is said to be concave _____ on an interval (a, b) when $f''(x) < 0$ for all x on that interval.

What might be true about the graph of a function when $f''(x) = 0$.

Use the Second Partials Test to find any extrema and saddle points for the surface.

$$f(x, y) = x^3 - 3xy + y^3$$