

Survey Calculus, 3.4—Further Applications of Optimization

2nd Derivative Test –

Sometimes a quick way to test whether a particular critical value is a max or min.

To use the 2nd Derivative Test you, find the critical values, and plug them into the second derivative.

If the answer that you get is negative (concave down) then you have a relative max there. If the answer that you get is positive (concave up) you have a relative min there. If the answer is 0 or undefined the 2nd Derivative Test tells you nothing.

Example: use the 2nd Derivative Test to find the extrema for $f(x) = x^3 - 3x^2 + 3x + 6$

Price and Quantity Functions

Hint: Let x =number of price reductions or increases

Total Profit= Total Revenue – Total Cost= (Price times number of items sold) – (fixed costs + variable costs)

Example#2

**General
#10**