Optimization

Conditions for profit maximization

Q - tons per each TR, TC, π - $

First-order necessary condition for a maximum if

If

Example

Using of Exponential and logarithmic Functions in Economics

e = 2.71818… (the preferred base)

e – can be interpreted as the result of a special mode of interest compounding.

$1 – capital hypothetical lanher offers the unusual interest rate = 100% per unrum.

If interest is to be compounded once a year the of our asset at the end

If interest is compounded semiannually

Where m represents the frequencies of compounding in 1 year

In the limiting case, when interest is compounded continuously, during the year when m becomes infinite, the value of the asset will grow in a “snowballing” fashion, becoming at the end of 1 year.

The interest rate of 100% is only a nominal interest, for if $1 becomes 2.718 offer 1 year effective interest rate is

Interest Compounding and the Function

Rate of Growth

Given function

Discounting and Negative Growth.

In a compound – interest problem, we seek to compute the future value V (principal + %) from a given present value A (initial principal). The problem of discounting is the opposite one of fiding the present value A if a given sun V which is to be available t years from now.

Discrete case

Logarithmic functions.

Base conversion

A Problem of Wine Storage

Suppose a wine dealer is in possession of a particular quantity of wine, which he can either sell at the present time (t=0) for a sum g$K or else store for some length of time and then sell at a higher value.