Osc3

A periodic function changing gradually from one value to another in each period. By using this function you can model various periodic variables. The input value to this function is typically a time variable. Assume e.g., that you are modeling a production system. The system is operative in periods of length 5 days. After each operative period, the system is idle for 2 days. If a system failure occurs during an operative period, the entire production in this period is lost. The cost of this loss is proportional to the length of the interval between the start of the operative period and the time of the system failure. If a system failure occurs during an idle period, nothing is lost. Such a situation can easily be modeled using the Osc3 function. Let the input value to the Osc3 function be the point of time when the first system failure occurs. Furthermore, let the parameters of the function be defined as follows:

“a” = The cost of the lost production if the system failure occurs at the end of an operative phase.

“b” = The cost of the lost production if the system failure occurs during an idle phase, i.e., zero.

“c” = The point of time when the system enters its first operative phase.

“d” = The length of an operative period.

“e” = The length of an idle period.

The output value of the function is then the cost of the first lost production.

Default parameter values:

a = 1, b = 0, c = 0, d = 1, e = 1

Example:

a = 60, b = 0, c = 0, d = 5, e = 2

Input = 8.1 => Output =
13.2

Input = 12.5 => Output =
0