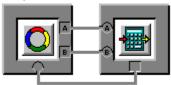
Optimisation Example

FILE: Optimum.cln

Introduction

Among the tools used within the <u>Solution Search</u> object is an unconstrained optimiser. This is a method used to find optimal solutions to problems that have no limiting factors on them.

Layer 0 of this file shows a simple example of such a problem.



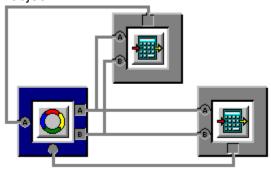
- This example **minimises** the function of two parameters: **(b-a*a)^2+(a*(1-b)+1)^2**
- This equation is held in the Calculator object. The outputs from Solution Search are fed directly into the Calculator object and the result fed directly back into Solution Search.
 To solve the sheet, switch to <u>Use Mode</u> and click on the Solution Search Object.

The result is a minimum of 0.27423609 when A is -0.65492435 and B is 0.14201398

Constrained Optimisation

Another tool within the Solution Search is the constrained optimiser - this is a technique for solving problems that are bounded by limits, but are not linear and hence linear programming techniques will not work (see Linear.cln).

On layer 1 of this file is an example of a constrained optimisation using the Solution Search object.



This is the $\underline{\text{Solution Search}}$ object, which is used to find the minimum result possible from the equation.

This is a <u>Calculator</u> object, used to calculate the test function.

This is a <u>Solution Search</u> object used to solve the sheet.

This is a $\underline{\text{Calculator}}$ object, used to calculate the constraint under which the sheet is evaluated.

This is a $\underline{\text{Calculator}}$ object, used to calculate the function being minimised.