

# OptQuest Vs. Microsoft Excel Solver (Brief Summary)

## OptQuest vs. Microsoft Excel Solver

*OptQuest* has important advantages over the Microsoft Excel *Solver*. *OptQuest* features that *Solver* lacks include the following.

- ***OptQuest* has the ability to avoid being trapped in locally optimal solutions to problems that contain nonlinearities (which commonly are present in real world problems).** The nonlinear solution component of *Solver* is only able to obtain a locally optimal solution — a solution whose quality may be substantially inferior to the quality of the solutions provided by *OptQuest*.
- ***OptQuest* is able to handle nonlinear relationships that are not specifiable by the kinds of equations and formulas that are used in mathematical programming formulations.** Excel's *Solver* does not apply to nonlinear problems other than those that can be expressed in "classical" mathematical programming form. Of particular practical importance, *OptQuest* can be applied to solve a problem whose objective and constraining relationships can only be captured by means of a simulation, which is beyond the capacity of *Solver* to deal with.
- ***OptQuest* provides the ability to solve problems that involve uncertainties, such as those arising from uncertain supplies, demands, prices, costs, flow rates, queuing rates and so forth.** *Solver* has no capability for handling problems of these types, though they represent applications that are crucially important in practice.

In sum, distinguishing features of *OptQuest* include the ability to avoid being trapped in local optima, the capacity to handle real world (as opposed to "classical") nonlinearities, and the power to handle relationships embodied in a simulation — relationships that lie at the heart of many applications in business, engineering, science and government.

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