

How to use solver add-in to solve equations in Excel?

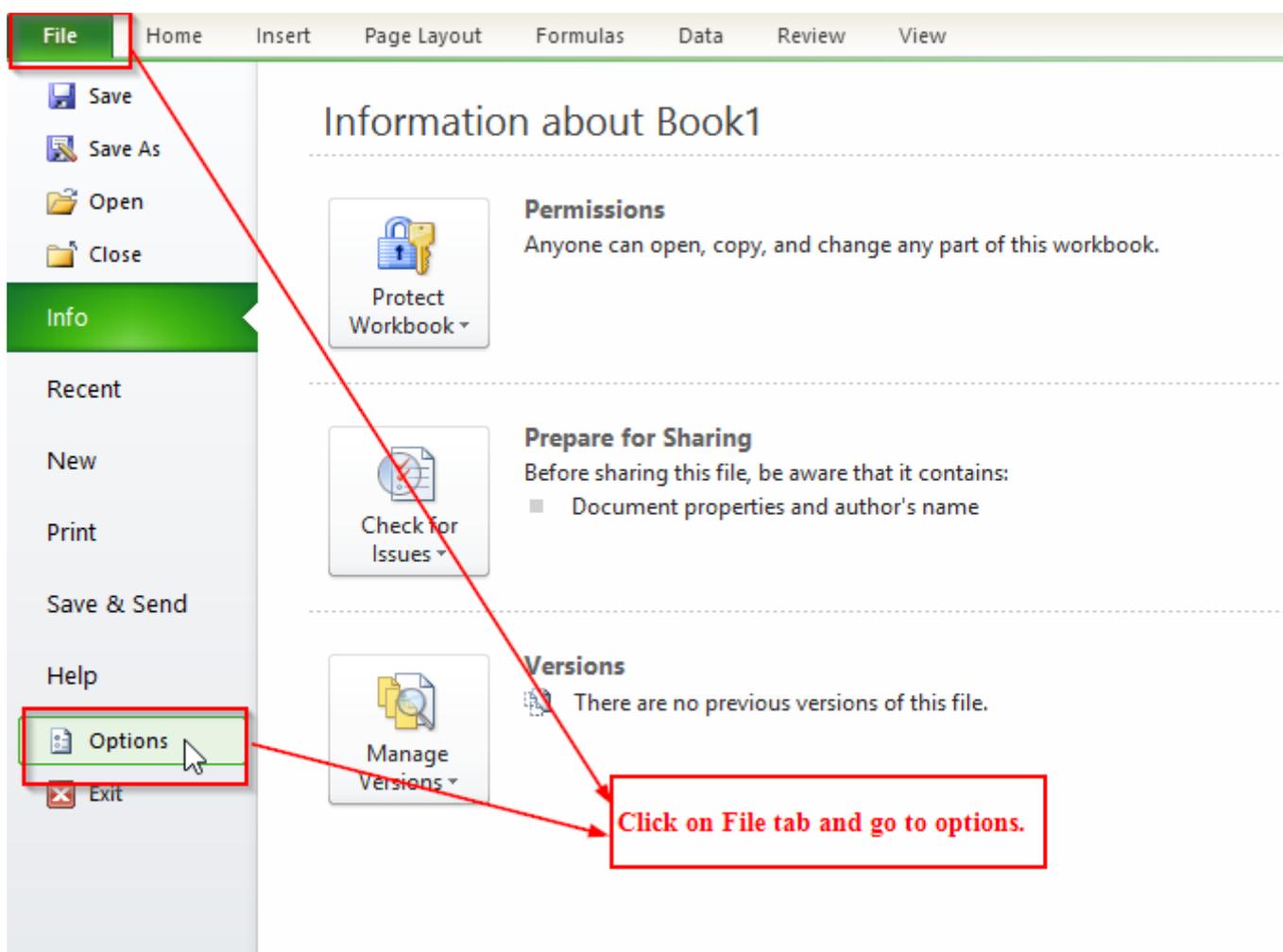
Explain Solver add-in in excel:

Have you done reverse calculation? I am sure you must have done it. For example, we all calculate passing mark requirement before final semester exam. What we do is to sum of first and second semester result and then subtract it from passing mark requirement. We do it many times in day to day life. Now EXCEL can helps us to do it in faster way using **SOLVER ADD-IN!!**

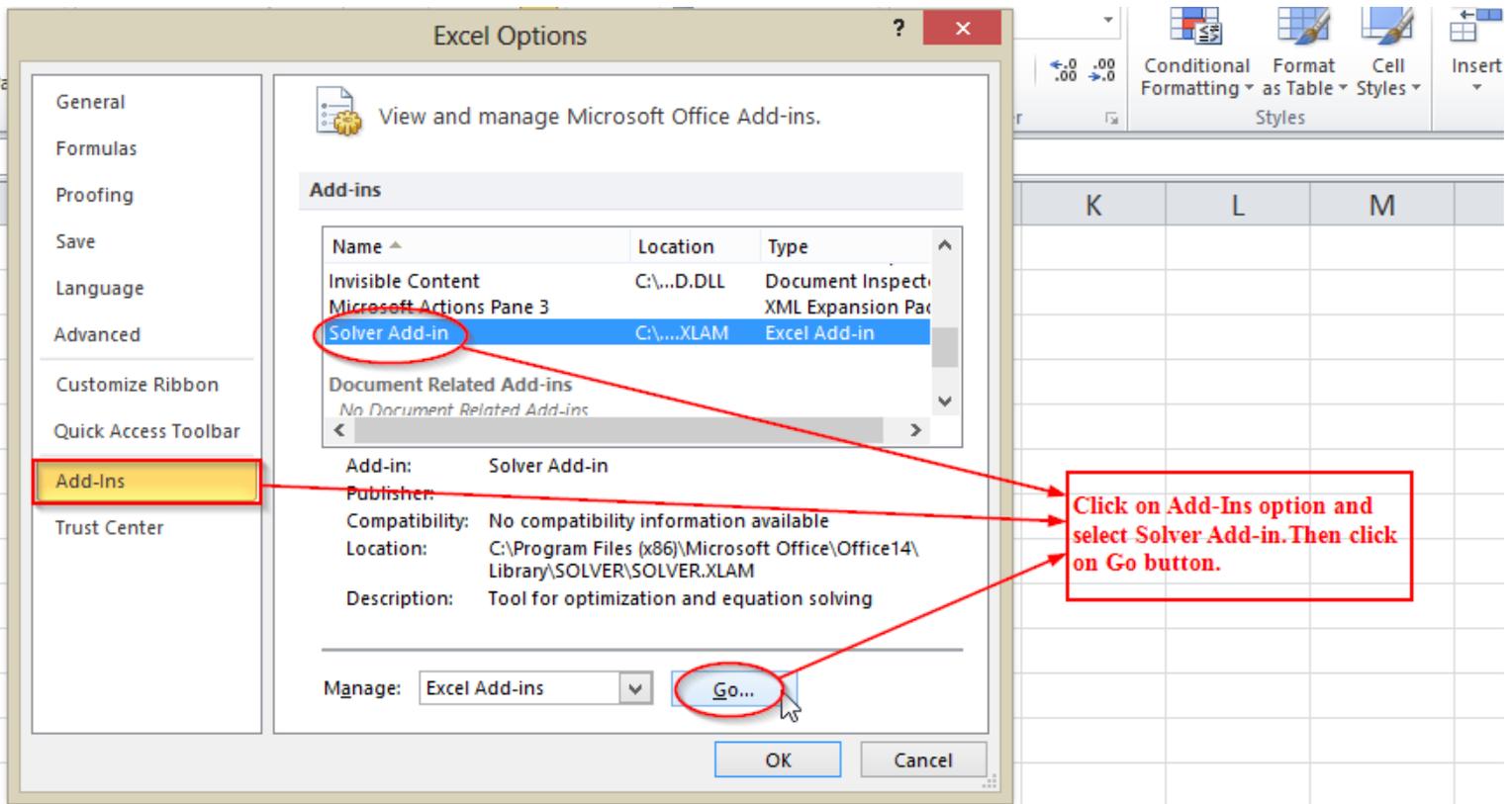
Excel provides tool called solver add-in which is used to find optimal solutions to various problems. It does reverse calculation and provide us best solution. SOLVER Add-in is very useful in solving equations.

First of all it is required to **load solver add-in** in excel. Following are the steps to be followed.

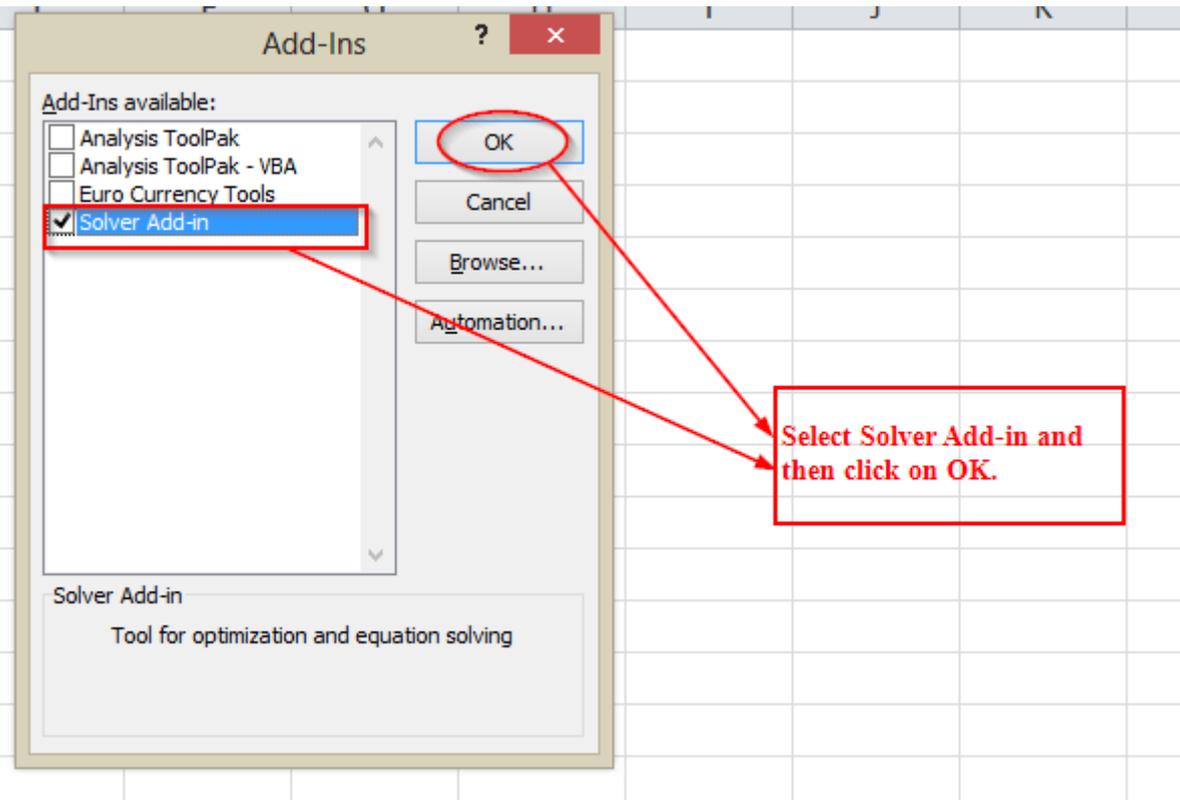
1. In Excel 2010, **Go to File Tab -> click Options**



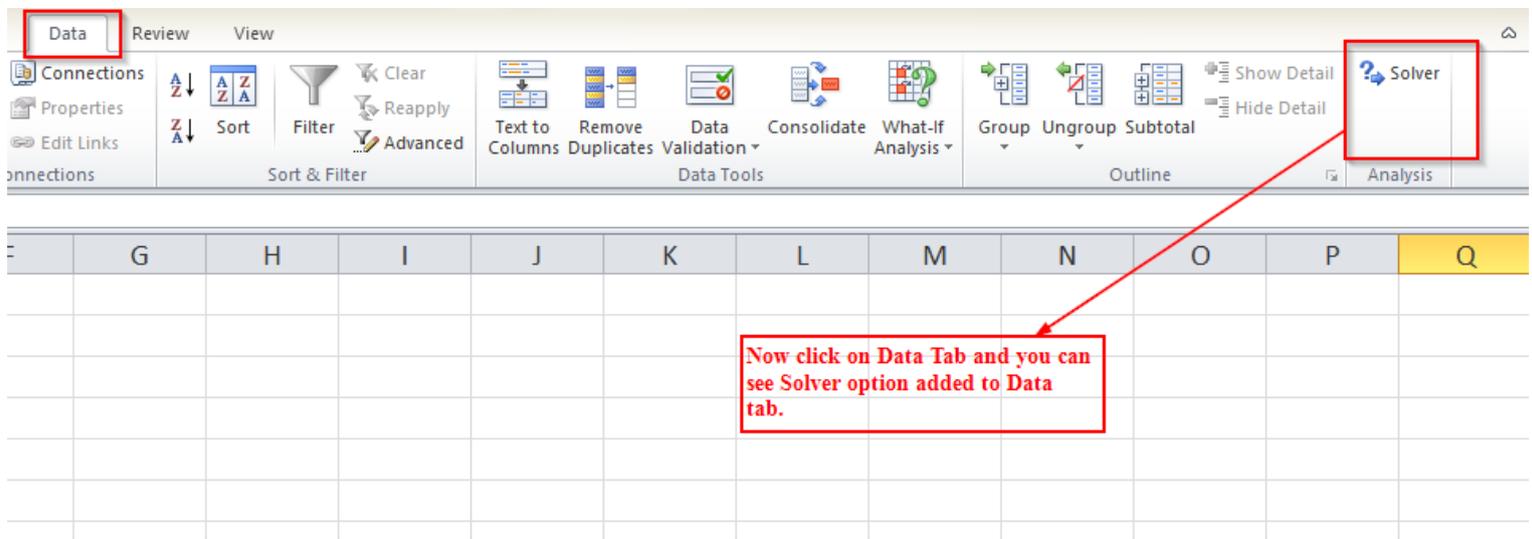
2. In **Excel Options** Dialog box, click on **Add-Ins** option, select **Solver Add-In** and then click on **Go** button



3. In Add-in dialog box, click on **SOLVER ADD-IN** and click OK.



4. Solver Add-in has been loaded in your computer. Click on **DATA** tab and you can see at SOLVER at extreme right.



Using Solver add-in in excel:

Let us see an example to understand this .

Example:

Suppose we have the data shown below. We want to increase the profit and we want to find out what should be our new selling price in order to increase our profit. To solve this problem solver is used.

1. Formula to calculate profit %= $((\text{Selling price}-\text{Cost price})/\text{Cost price})\times 100$

	A	B	C	D	E	F
1		TV	Fridge	Computer		
2	Cost price/unit	22000	17000	23000		
3	Selling price/unit	30000	20000	28000		
4	profit(%)	36.36	17.65	21.74		
5						
6						
7						
8						

See more: [How to Provide proper cell reference in Excel?](#)

2. Here we want to increase the profit of Fridge from 17.65 to 20. It means that our set_objective is \$C\$4 which is selling price of fridge. Provide set value in next Tab.

Then you need to specify criteria, based on which you would like to increase profit. Here we have two parameters: Cost price and selling price. Either we reduce our cost price or increase our selling price. So we have provided range \$C\$2:\$C\$3 in changing variables. You can also provide constraints, for example cost price should not be less than 17000 and selling price should not be greater than 20000.

Solver Parameters

Set Objective:

To: Max Min Value Of:

By Changing Variable Cells:

Subject to the Constraints:

Make Unconstrained Variables Non-Negative

Select a Solving Method:

Solving Method
 Select the GRG Nonlinear engine for Solver Problems that are smooth nonlinear. Select the LP Simplex engine for linear Solver Problems, and select the Evolutionary engine for Solver problems that are non-smooth.

Here we want to increase the profit of Fridge from 17.65 to 20 hence we set it as set objective and set its value to 20.

we want to achieve 20 % profit by changing the cells C2 and C3.

We define the constraints that C2 value should be less than or equal to 17000 and C3 should be greater than 20000. Here ADD option is used to add the constraints. Then click on Solve

C
Fridge
17000
20000
17.65

3. Based on our data, Solver Add-in will calculate cost price and selling price keeping profit as 20%. You get the best solution from SOLVER. Click OK to keep Solver Solution or Cancel to try another solution.

Solver Results

Solver found a solution. All Constraints and optimality conditions are satisfied.

Reports

Keep Solver Solution
 Restore Original Values

Return to Solver Parameters Dialog Outline Reports

Solver found a solution. All Constraints and optimality conditions are satisfied.
 When the GRG engine is used, Solver has found at least a local optimal solution. When Simplex LP is used, this means Solver has found a global optimal solution.

Here you can see that to achieve 20 % profit the cell values of C2 and C3 are changed. The solver gives you an option whether to keep the solution or restore the original solution. You can select according to your need and click on OK/Cancel.

C	
Fridge	Cor
16832	2
20198	2
20.00	2

4. By clicking OK, we have Solver solution in Excel sheet.

A	B	C	D	E	F
	TV	Fridge	Computer		
Cost price/unit	22000	16832	23000		
Selling price/unit	30000	20198	28000		
profit(%)	36.36	20.00	21.74		

The new selling price is 20198 and cost price is 16832.

Explore more, It's Amazing...

[Use nested IF function to evaluate multiple condition](#)

[How to use SUM, SUMIF, SUMIFS functions in excel?](#)