

ACCOUNTRONIC SOFTWARE

Excel

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

ثُمَّ رُدُّوْا إِلَى اللَّهِ مَوْلَاهُمْ الْحَقَّ ۚ لَا إِلَهَ إِلَّا لَهُ الْحُكْمُ وَهُوَ
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صدق الله العظيم

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QBasic	(Objective Programming	

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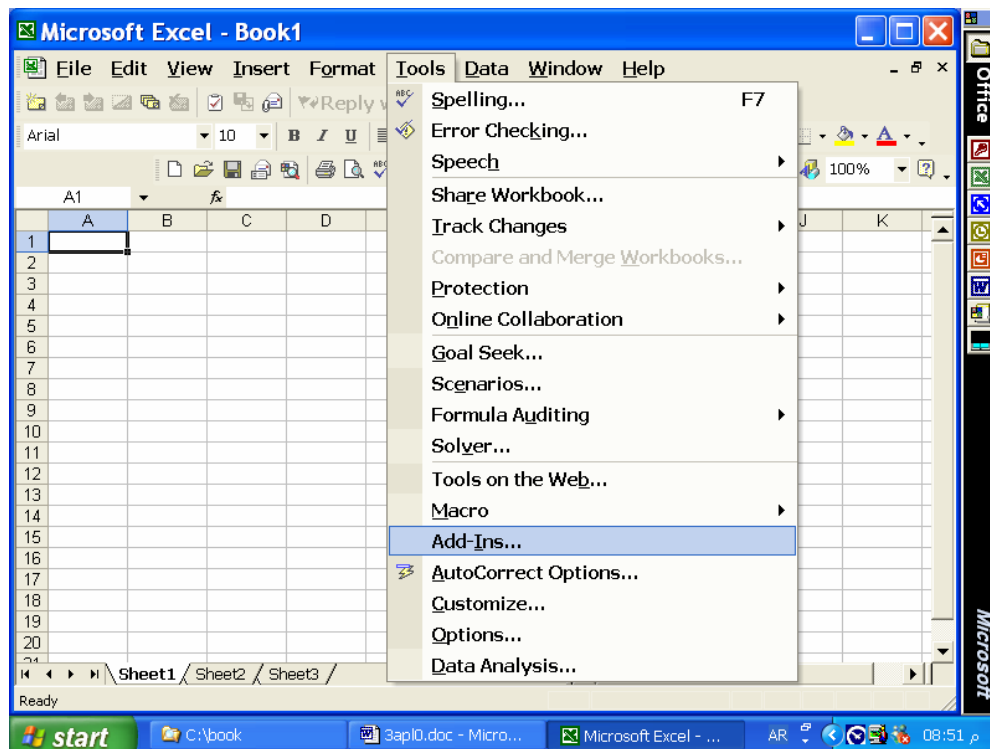
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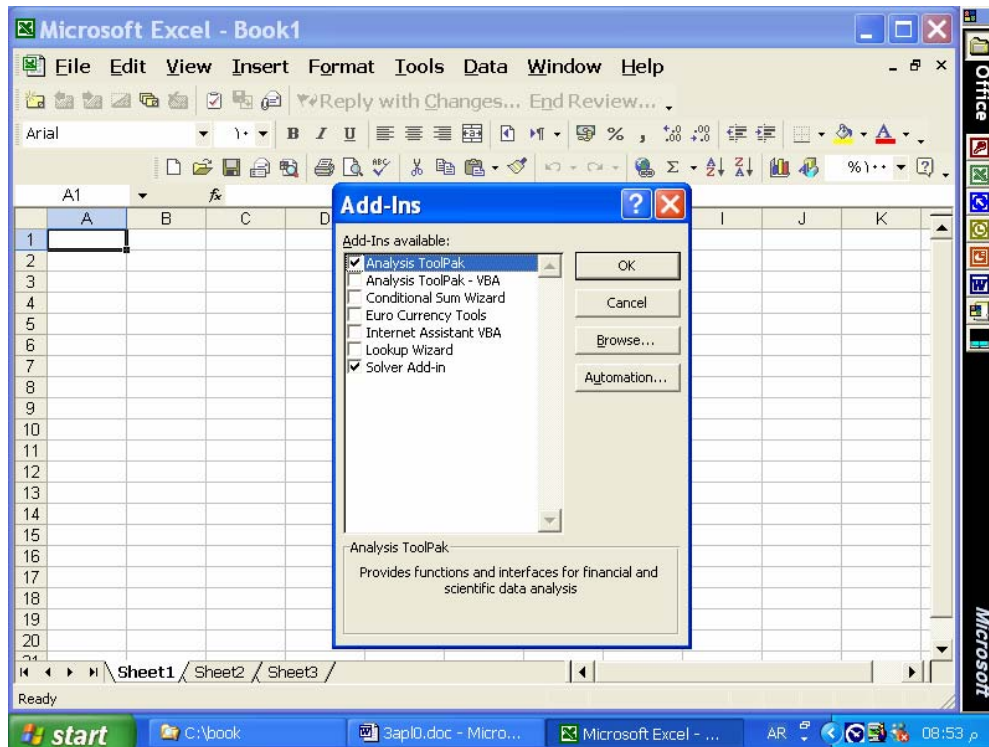
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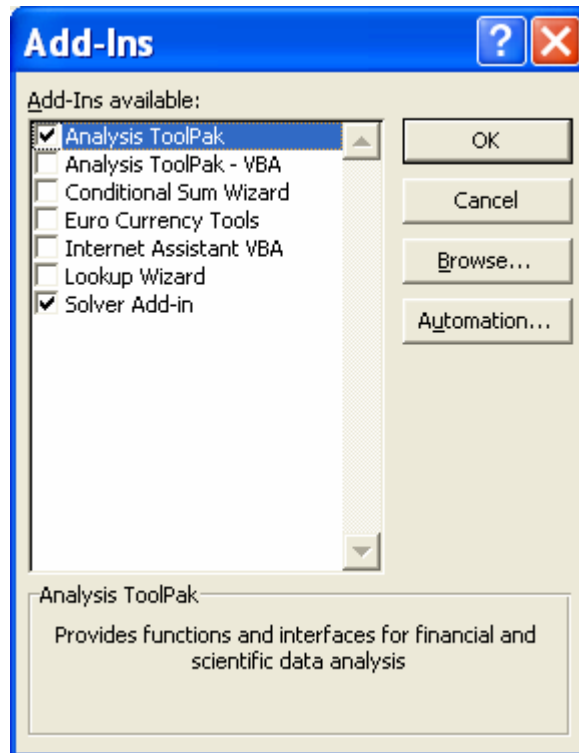
Solver

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**Data Analysis (Analysis Solver
Tools ToolPak)
Add Ins**





: Solver Analysis ToolPak



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OK

التطبيق الاول:

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Solver

Linear Programming (Maximization)

()

التطبيق الاو :

Solver

Data File: LP1.xls

(Enter the next model parameters to excel worksheet and solve the model, data already entered to data file):

Max $10S + 9D$ (where S and D are standard and deluxe products, the function represents profit contribution)

Subject to (production requirements):

$.7S + 1D \leq 630$ (Cutting and Dyeing hours constraint)

$.5S + .833D \leq 600$ (Sewing production hours constraint)

$1S + .667D \leq 708$ (Finishing production hours constraint)

$.1S + .25 D \leq 135$ (Inspection and packaging hours constraint)

$S, D \geq 0$

1. Enter the problem in the top part of the worksheet: cells B5:C8 production requirements, cells B9:C9 profit contribution, cells D5:D8 available hours in each production department (RHS).
2. Specify cell locations for the decision variables. Cell B16 contains S unites produced and cell C16 contains D units produced.
3. Select cell B18 to enter the formula for computing the value of objective function: $B18 = B9 * B16 + C9 * C16$.
4. Select cells to enter formulas for computing the LHS of each constraint: Cell B21 = $B5 * B16 + C5 * C16$, B22 = $B6 * B16 + C6 * C16$,

$B_{23} = B_7 * B_{16} + C_7 * C_{16}$ and $B_{24} = B_8 * B_{16} + C_8 * C_{16}$. Constraints and \leq are added from the Add Button on Solver dialog box.

5. Select cells to enter formulas for computing the RHS of each constraint: Cell D21 = D5, D22 = D6, D23 = D7 and D24 = D8.
6. (a) Select the Tools pull-down menu, (b) Select the Solver option, (c) When the Solver Parameters dialog box appears enter B18 into the set cell box, select Equal To: Max option, enter B15:C16 into the By Changing Variable Cells box, and Select Add, (d) When the Add Constraint dialog box appears: enter B21:B24 in the Cell Reference box, select \leq , enter D21:D24 into the Constraint box, and click OK, (e) When the Solver Parameters dialog box reappears: choose Options, (f) When the Solver Options dialog box appears: select Assume Non-Negative and click OK, (g) When the Solver Parameters dialog box appears: choose Solve, and (h) When the Solver Results dialog box appears: select Keep Solver Solution, and click OK.

The following screens exhibit the above steps to solve the excel application (Note: Required data file is already saved on OR Data Files Subdirectory):

LP1.xls :

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630 => + 0 7

600 => . 833 + . 5

708 => . 667 +

135 => . 25 + . 1

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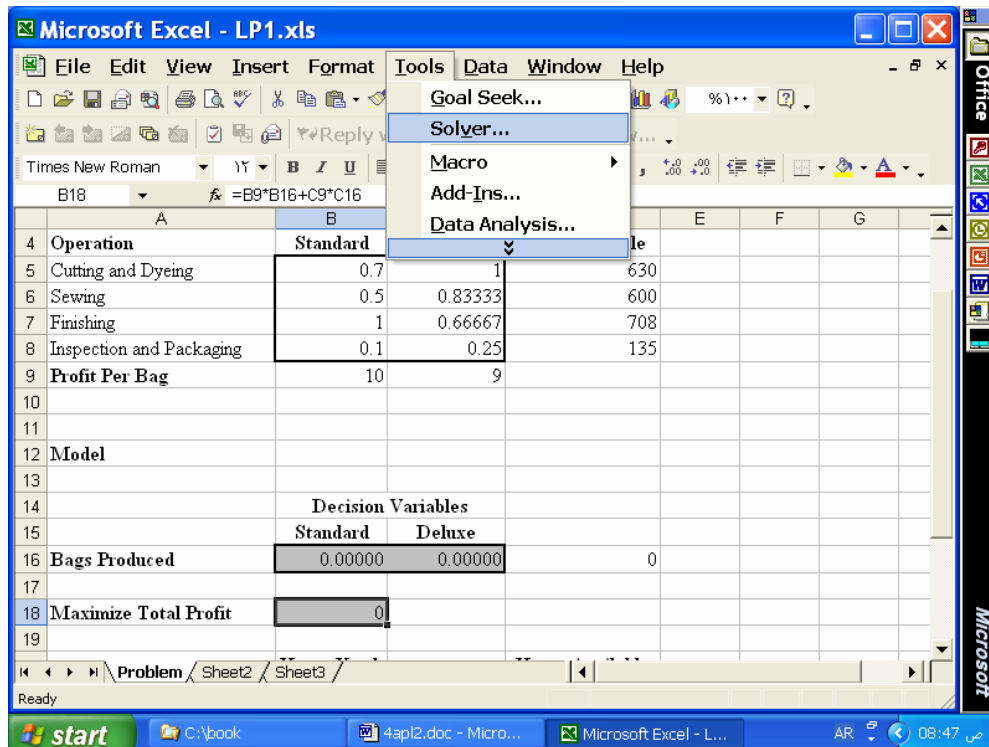
B9:C9 B5:C8 -1
D5:D8
B16, C16 -2
B18 = B9*B16 + C9*C16 B18 -3
=>) -4
:(Solver Add
Cell B21 = B5*B16 + C5*C16, B22 = B6*B16 + C6*C16, B23 =
B7*B16 + C7*C16 and B24 = B8*B16 +C8*C16.
:-5
Cell D21 = D5, D22 = D6, D23 = D7 and D24 =D8.
Solver -6
B18
Max
Solve
.OK Keep Solver Solution

OR Data :)
(Files

The screenshot shows a Microsoft Excel spreadsheet titled "LP1.xls". The spreadsheet contains a linear programming problem table. The table is structured as follows:

Operation	Production Time		Time Available
	Standard	Deluxe	
Cutting and Dyeing	0.7	1	630
Sewing	0.5	0.833333	600
Finishing	1	0.666667	708
Inspection and Packaging	0.1	0.25	135
Profit Per Bag	10	9	
Model			
	Decision Variables		
	Standard	Deluxe	
Bags Produced	0.00000	0.00000	0

The spreadsheet also shows a menu bar (File, Edit, View, Insert, Format, Tools, Data, Window, Help), a toolbar, and a status bar at the bottom. The Windows taskbar at the bottom shows the Start button, a folder named "C:\book", and several open applications including "4apl2.doc - Micro..." and "Microsoft Excel - L...". The system clock shows "08:46".



Solver

The screenshot shows Microsoft Excel with a Solver Parameters dialog box open. The spreadsheet contains the following data:

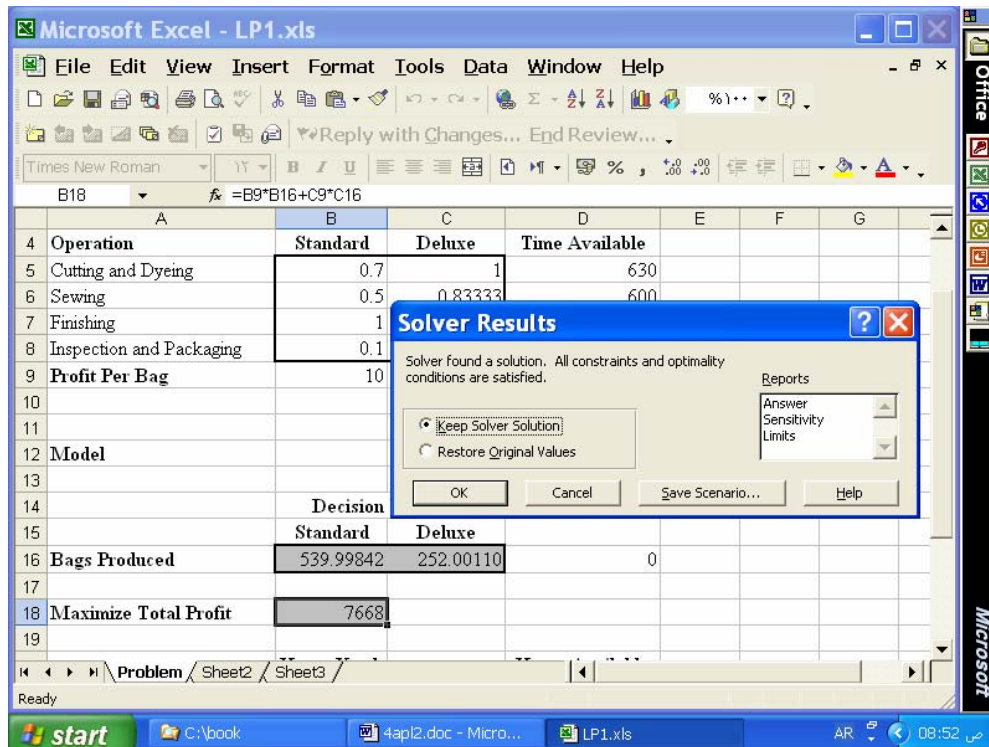
Operation	Standard	Deluxe	Time Available
Cutting and Dyeing	0.7	1	630
Sewing	0.5	0.83333	600
Finishing			
Inspection and Packaging			

The Solver Parameters dialog box is configured as follows:

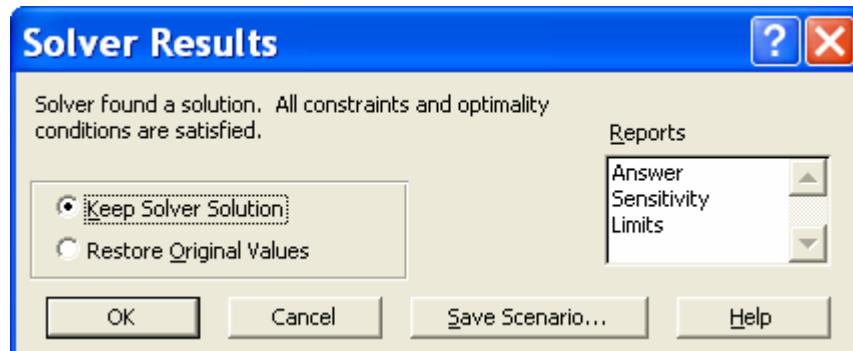
- Set Target Cell: $B9$ (Profit Per Bag)
- Equal To: Max Min Value of: 0
- By Changing Cells: $B16:C16$ (Bags Produced)
- Subject to the Constraints: $B21:B24 \leq D21:D24$ (Time Available)

This is a close-up of the Solver Parameters dialog box. The configuration is identical to the previous screenshot:

- Set Target Cell: $B18$
- Equal To: Max Min Value of: 0
- By Changing Cells: $B16:C16$
- Subject to the Constraints: $B21:B24 \leq D21:D24$



:OK



Model		Decision Variables		
	Standard	Deluxe		
Bags Produced	539.99842	252.00110		0
Maximize Total Profit	7668			
Constraints		Hours Used (LHS)		Hours Available (RHS)
Cutting and Dyeing	630	<=		630
Sewing	479.99929	<=		600
Finishing	708	<=		708
Inspection and Packaging	117.00012	<=		135

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