

## What-If Analysis tools

By using What-If Analysis tools in Excel, you can use several **different sets of values** in one or more **formulas** to explore all the various **results**.

For example, you can do What-If Analysis to build **two budgets** that each assumes a certain **level of revenue**.

Or, you can specify a **result that you want a formula to produce**, and then determine what sets of values will produce that result.

Excel provides several different tools to help you perform the type of analysis that fits your needs.

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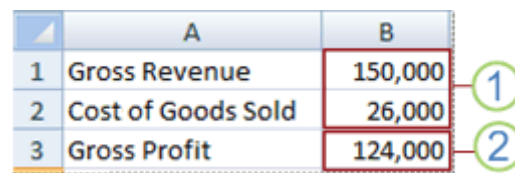
## 1. Use scenarios to consider many different variables

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A **Scenario** is a set of values that Excel saves and can substitute automatically in cells on a worksheet. You can create and save different groups of values on a worksheet and then switch to any of these new scenarios to view different results.

For example, suppose you have two budget scenarios: a worst case and a best case. You can use the Scenario Manager to create both scenarios on the same worksheet, and then switch between them. For each scenario, you specify the cells that change and the values to use for that scenario. When you switch between scenarios, the result cell changes to reflect the different changing cell values.

	A	B
1	Gross Revenue	150,000
2	Cost of Goods Sold	26,000
3	Gross Profit	124,000

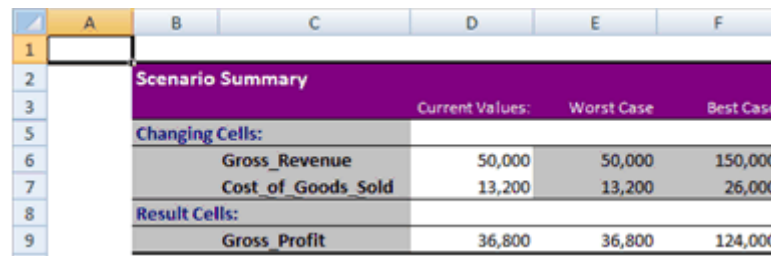


1. Changing cells

2. Result cell

If several people have specific information in separate workbooks that you want to use in scenarios, you can collect those workbooks and merge their scenarios.

After you have created or gathered all the scenarios that you need, you can create a Scenario Summary Report that incorporates information from those scenarios. A scenario report displays all the scenario information in one table on a new worksheet.



The image shows a screenshot of a spreadsheet with a Scenario Summary Report. The report is located in columns B through F and rows 2 through 9. The table has a purple header row (row 2) with the title 'Scenario Summary' and three sub-headers: 'Current Values', 'Worst Case', and 'Best Case'. Below the header, there are two sections: 'Changing Cells' (rows 5-7) and 'Result Cells' (row 9). The 'Changing Cells' section lists 'Gross Revenue' and 'Cost of Goods Sold'. The 'Result Cells' section lists 'Gross Profit'. The values for 'Current Values' are 50,000 for Gross Revenue and 13,200 for Cost of Goods Sold. The values for 'Worst Case' are 50,000 for Gross Revenue and 13,200 for Cost of Goods Sold. The values for 'Best Case' are 150,000 for Gross Revenue and 26,000 for Cost of Goods Sold. The Gross Profit values are 36,800 for Current Values and Worst Case, and 124,000 for Best Case.

	A	B	C	D	E	F
1						
2		<b>Scenario Summary</b>				
3				Current Values:	Worst Case	Best Case
4		<b>Changing Cells:</b>				
5						
6		Gross Revenue		50,000	50,000	150,000
7		Cost of Goods Sold		13,200	13,200	26,000
8		<b>Result Cells:</b>				
9		Gross Profit		36,800	36,800	124,000

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## 2. Goal Seek to find out how to get a desired result

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If you know the **result that you want from a formula**, but you're not sure what input value the formula requires to get that result, you can use the **Goal Seek** feature.

For example, suppose that you need to borrow some money. You **know how much money you want, how long a period you want in which to pay off the loan, and how much you can afford to pay each month.** You can use Goal Seek to determine what interest rate you must secure in order to meet your loan goal.

	A	B
1	Loan Amount	\$100,00
2	Term in Months	180
3	Interest Rate	7.02%
4	Payment	(\$900.00)

Cells B1, B2, and B3 are the values for the loan amount, term length, and interest rate.

Cell B4 displays the result of the formula **=PMT(B3/12,B2,B1)**.

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### **3. Use Data Tables to see the effects of one or two variables on a formula**

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If you have a **formula that uses one or two variables, or multiple formulas that all use one common variable**, you can use a **Data Table** to see all the outcomes in one place.

Using Data Tables makes it easy to examine a range of possibilities at a glance.

Because you focus on only one or two variables, results are easy to read and share in tabular form.

If automatic recalculation is enabled for the workbook, the data in Data Tables immediately recalculates; as a result, you always have fresh data.

	A	B	C	D
1	Mortgage Loan Analysis			Payments
2	Down Payment	None		\$672.68
3	Interest Rate	9.50%	9.00%	\$643.70
4	Terms (months)	360	9.25%	\$658.14
5	Loan Amount	\$80,000	9.50%	\$672.68

Cell B3 contains the input value.

Cells C3, C4, and C5 are values Excel substitutes based on the value entered in B3.