

Bill-Tip-Split Worksheet

N° Heads 11	Bill (\$) 576.25
Tip (%) 14.53 %	Total (\$) 660.00
Tip (\$) 83.75	Split (\$/head) 60.00

This worksheet implements a simple way to manage the “Bill-Tip-Split” problem. To perform the calculations, two parameters and one variable must be entered. The parameters are: **Bill(\$)**, for Bill amount and **N° Heads**, for the number of persons that share the bill. The variables are: **Tip(%)** for the tip percentage; **Tip(\$)** for the tip amount; **Total(\$)** for the total amount to be paid and **Split (\$/Head)** for the amount corresponding to each person.

Each time a number is entered into a parameter or variable, the calculation of all the others are performed automatically:

Bill-Tip-Split Actions	
[Bill (\$)]	Stores the Bill amount and calculates : $\text{Tip}(\$) = \text{Bill}(\$) \cdot (\text{Tip}(\%) \div 100)$ $\text{Total}(\$) = \text{Bill}(\$) + \text{Tip}(\$)$ $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
[N°Heads]	Stores the number of persons and calculates : $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
[Tip (%)]	Stores the tip percentage and calculates : $\text{Tip}(\$) = \text{Bill}(\$) \cdot (\text{TIP}(\%) \div 100)$ $\text{Total}(\$) = \text{Bill}(\$) + \text{Tip}(\$)$ $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
[Tip (\$)]	Stores the tip amount and calculates : $\text{Tip}(\%) = 100 \cdot (\text{Tip}(\$) \div \text{Bill}(\$))$ $\text{Total}(\$) = \text{Bill}(\$) + \text{Tip}(\$)$ $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$

Bill-Tip-Split Actions	
[Total (\$)]	Stores the total to be paid and calculates : $\text{Tip}(\$) = \text{Total}(\$) - \text{Bill}(\$)$ $\text{Tip}(\%) = 100 \cdot (\text{Tip}(\$) \div \text{Bill}(\$))$ $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
[Split (\$/Head)]	Stores the each person amount to pay and calculates : $\text{Total}(\$) = \text{N}^\circ\text{Persons} \cdot \text{Split}(\$/\text{Head})$ $\text{Tip}(\$) = \text{Total}(\$) - \text{Bill}(\$)$ $\text{Tip}(\%) = 100 \cdot (\text{Tip}(\$) \div \text{Bill}(\$))$

Example:

A dinner Bill is \$576.25 and 11 persons will share it. What is the amount per person if all agree to add a 15% tip?.

Keystrokes	Description
576.25 [Bill (\$)]	Stores the Bill amount. Bill = 576.25
11 [N° Heads]	Enter the number of persons. N° Heads = 11.00
15 [Tip (%)]	Stores the tip percentage. Tip% = 15.00
[Tip (\$)]	Shows the tip amount. Tip\$ = 86.44
[Total (\$)]	Shows the total amount. Total = 662.69
[Split (\$/Head)]	Shows the amount to pay per person. Split = 60.24

Suppose no one wants to pay the exact amount and the split is rounded to \$60.00. What is the Tip% and the new Total ?

Keystrokes	Description
60 [Split (\$/Head)]	Stores the rounded amount per person. Split = 60.00
[Total (\$)]	Shows the new Total. Total = 660.00
[Tip (\$)]	Shows the tip amount. Tip\$ = 83.75
[Tip (%)]	Shows the new Tip percent. Tip% = 14.53