

# Bill-Tip-Split Worksheet

<b>N° Heads</b> 11	<b>Bill (\$)</b> 576.25
<b>Tip (%)</b> 14.53 %	<b>Total (\$)</b> 660.00
<b>Tip (\$)</b> 83.75	<b>Split (\$/head)</b> 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	
<b>[Bill (\$)]</b>	Stores the Bill amount and calculates : $\text{Tip}(\$) = \text{Bill}(\$) \cdot (\text{Tip}(\%) \div 100)$ $\text{Total}(\$) = \text{Bill}(\$) + \text{Tip}(\$)$ $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
<b>[N°Heads]</b>	Stores the number of persons and calculates : $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
<b>[ Tip (%) ]</b>	Stores the tip percentage and calculates : $\text{Tip}(\$) = \text{Bill}(\$) \cdot (\text{TIP}(\%) \div 100)$ $\text{Total}(\$) = \text{Bill}(\$) + \text{Tip}(\$)$ $\text{Split}(\$) = \text{Total}(\$) \div \text{Split}(\$/\text{Head})$
<b>[ Tip (\$) ]</b>	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. <b>Bill = 576.25</b>
11 [ N° Heads ]	Enter the number of persons. <b>N° Heads = 11.00</b>
15 [ Tip (%) ]	Stores the tip percentage. <b>Tip% = 15.00</b>
[ Tip (\$) ]	Shows the tip amount. <b>Tip\$ = 86.44</b>
[ Total (\$) ]	Shows the total amount. <b>Total = 662.69</b>
[ Split (\$/Head) ]	Shows the amount to pay per person. <b>Split = 60.24</b>

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. <b>Split = 60.00</b>
[ Total (\$) ]	Shows the new Total. <b>Total = 660.00</b>
[ Tip (\$) ]	Shows the tip amount. <b>Tip\$ = 83.75</b>
[ Tip (%) ]	Shows the new Tip percent. <b>Tip% = 14.53</b>