

HP 12c Financial Calculator - Percentage Functions and Calculations

- [Percent computations](#)
- [The HP 12c percent computations](#)
- [Practice with percentage calculations](#)

Percent computations

The percentage calculation gives the result of applying a rate, expressed as parts of a hundred (per cent), to a base value. A generic expression for a percentage computation is shown in Figure 1:

Figure : Expression for a percentage calculation

$$x = \frac{b \times a}{100}$$

where:

'a' is the rate, expressed in parts of a hundred (percents);

'b' is the base value;

'x' expresses the percent of the base when the rate is applied (%).

The percent change expresses the percent difference between two generic values related to one of the values. A generic expression for a percent change computation is shown in Figure 2:

Figure : Expression for a percent change calculation

$$\Delta x = \frac{(a - b) \times 100}{b}$$

where:

'a' is the reference amount;

'b' is the base value (b≠0);

'Δx' expresses the percent change from 'b' to 'a' (Δ%).

The percent of total expresses a percentage that relates two numbers. Usually one of them represents part of the other. A generic expression for a percent of total computation is shown in Figure 3:

Figure : Expression for a percent of total calculation

$$xT = 100 \times \frac{a}{b}$$

where:

'a' is the part of the total;

'b' is the total amount (b≠0);

'xT' expresses the percentage 'a' represents for the total 'b' (%T).

The HP 12c percent computations

The HP 12c has three keys to compute percentages: $\boxed{\%}$, $\boxed{\Delta\%}$ and $\boxed{\%T}$. To compute either percentage, percent change or percent of total given both 'a' and 'b', simply key 'a' and 'b' in separated by $\boxed{\text{ENTER}}$ and press the related percentage key.

On the HP 12c, the base value used in percentages (first introduced value) is always kept, so it can be used in further calculations, like net amount. For example, the following sequence is a general sequence to compute the net amount:

$$b \boxed{\text{ENTER}} a \boxed{\%} \left\{ \begin{array}{l} \boxed{+} \\ \text{or} \\ \boxed{-} \end{array} \right.$$

Practice with percentage calculations

Example 1

Mr. O'Brien needs to compute an 11% tax fee over his employees extra activities. The amount to be paid for the extra activities is \$1,230. How much is 11% of \$1,230?

Solution

The simplest keystroke sequence to compute the 11% of \$1,230 is:

Keystroke	Display
<div style="display: flex; gap: 5px; align-items: center;"> 1 2 3 0 ENTER 1 1 % </div>	<p>Figure : Calculating the amount for 11% of \$1,230</p> <div style="border: 1px solid black; padding: 5px; text-align: center; background-color: #f0f0f0;"> <p style="font-size: 1.2em; margin: 0;">135.30</p> </div>

Answer

11% of \$1,230 is \$135.30.

Example 2

Now that Mr. O'Brien has the 11% tax fee computed, what is the net amount after adding 11% to \$1,230? Assume this is performed immediately after Example 1.

Solution

Simply press + because both the base and the percentage (display) are still available.

Figure : Calculating the net amount



Answer

The net amount is \$1,365.30.

Example 3

Given that Mr. O'Brien's total expenses are \$15,890, what is the percentage that \$1,365.30 represents in this total? Assume this is performed immediately after Example 2.

Solution

The simplest keystroke sequence to compute this percentage is:

Keystroke	Display
1 5 8 9 0 x \approx y %T	Figure : Calculating the percentage 8.59

Answer

\$1,365.30 represents 8.59% of \$15,890.

Example 4

In order to convince a possible customer to buy a new stereo, the salesman offers him a 5.5% discount off the price. Given that the stereo's price is \$480, how much will the customer pay for it?

Solution

The keystroke sequence below can be used to compute the final price:

Keystroke	Display
4 8 0 ENTER 5 . 5 % -	Figure : Calculating the final amount 453.60

Answer

If he agrees with it, the customer will pay \$453.60.

Example 5

The final balance of a savings account after six months is \$12,325. Knowing that it started with \$12,000, what is the percent change observed in this account?

Solution

The keystroke sequence to compute the percent change is:

Keystroke	Display
<div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 2px;"> 12000ENTER </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 2px;"> 12325Δ% </div>	<p>Figure : Calculating the percent change</p> <div style="border: 1px solid black; padding: 5px; text-align: center; background-color: #f0f0f0;"> <p>2.71</p> </div>

Answer

2.71%. This means that \$12,350 is 2.71% bigger than \$12,000.

Example 6

A large company had sales of \$123,000,000 last year. Given that one of its largest affiliates contributed to this total with sales of \$11,500,000, what is the percentage that represents its contribution to the total?

Solution

This is a classic percent of total computation, and the following keystroke sequence can be used to compute it:

Keystroke	Display
<div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 2px;"> 1230000000ENTER </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 2px;"> 11500000%T </div>	<p>Figure : Calculating the percentage</p> <div style="border: 1px solid black; padding: 5px; text-align: center; background-color: #f0f0f0;"> <p>9.35</p> </div>

Answer

\$11,500,000 represents 9.35% of \$123,000,000 (the total).