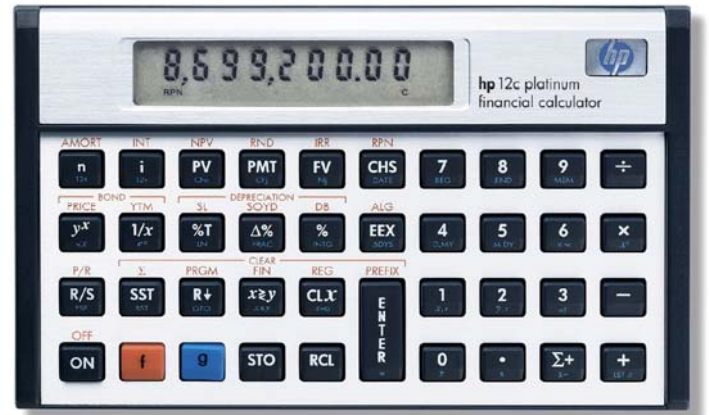**hp calculators**

HP 12C Platinum
Cost, Price and Markup Calculations

Cost, price and markup concepts

How to calculate cost, price and markup on the HP12C Platinum

Practice solving cost, price and markup problems

HP 12C Platinum Cost, Price, and Markup Calculations

Cost, price and markup concepts

Items that are bought and sold have a cost to the seller and a price to the buyer. The difference between the cost and the price is the gross amount the seller makes on the sale. There are two ways of computing the percentage this difference represents. The term markup uses the cost as the basis for the percentage calculation while margin looks at the price as the basis. The diagram in Figure 1 illustrates the relationship between cost and price.
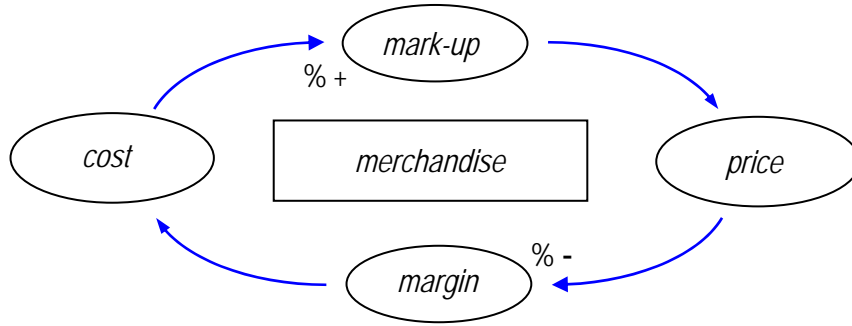

Figure 1

The cost is the price minus a percent of the price called **margin**. The price can also be viewed as the cost plus a percentage of the cost called **markup**. The following expressions relate margin, price and cost with each other.

$$MU(\%) = \left(\frac{PRC - CST}{CST} \right) \times 100 \qquad PRC = CST + \left(\frac{MU(\%) \times CST}{100} \right) \qquad CST = \frac{PRC}{1 + \left(\frac{MU(\%)}{100} \right)}$$

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The table below summarizes the keystroke sequence for each of the calculations above in RPN mode:

Unknown	Keystroke
markup	key in cost, ENTER, key in price, Δ%
price	key in cost, ENTER, key in markup, % +
cost	key in price, ENTER, 1, ENTER, key in markup, % + ÷

Figure 2

The table below summarizes the keystroke sequence for each of the calculations above in algebraic mode:

Unknown	Keystroke
markup	key in cost, ENTER, key in price, Δ%
price	key in cost, + , key in markup, % =
cost	key in 1, + , key in markup, % = , key in price, ÷ x≷y =

Figure 3

Practice with solving interest rate conversion problems

Example 1:   A television is sold for $300. Given that it costs $195, what is the markup?

Solution: The keystroke sequence to calculate the markup in this case is:

[1][9][5] [ENTER] [3][0][0] [Δ%]

$$5\,3.8\,5$$

Answer: The markup is 53.85% for a $300 price given that is costs $195.

Example 2:   The store manager wants to sell more TV sets and wants to reduce the price. If she cannot reduce the markup below 40%, so what is the lowest price for this TV set? Assume the same $195 cost.

Solution: The keystroke sequence to calculate the lower price in this case is:

In RPN mode: [1][9][5] [ENTER] [4][0] [%] [+]
In algebraic mode: [1][9][5][+] [4][0][%][=]

$$2\,7\,3.0\,0$$

Figure 5

Answer: The lowest price for this TV set is $273 given a 40% markup and a $195 cost.

Example 3:   Based on these figures, the store manager decides to sell the TV set for $289.99. What is the markup with this price?

Solution: The following keystroke sequence calculates the markup with the new price:

[1][9][5] [ENTER] [2][8][9][·][9][9][Δ%]

$$4\,8.7\,1$$

Figure 6

Answer: With the new price, the applied markup is 48.71%.

Example 4:   A new stereo system has a $150.75 sales price. Given a 53% markup for this stereo system, what must be its cost?

Solution: The keystroke sequence to calculate the cost with these figures is:

In RPN mode: 1 5 0 · 7 5 ENTER 1 ENTER 5 3 % + ÷
In algebraic mode: 1 + 5 3 % = 1 5 0 · 7 5 ÷ x≷y =

$$98.53$$

Figure 7

Answer: The cost of this stereo system is $98.53.

Example 5:   When calculating the price of a toaster, a 32% margin is expected on each sale. What is the markup to be applied to the cost of a toaster to obtain this margin?

Solution: The following keystroke sequence calculates the markup given a 32% margin:

In RPN mode: 3 2 ENTER ENTER 1 x≷y % − ÷
In algebraic mode: 1 − 3 2 % = 3 2 ÷ x≷y =

$$47.06$$

Figure 8

Answer: A 47.06% markup is equivalent to a margin of 32%.