Illustrative examples
Pension plan

$$IP = PP$$

How much money you need to have for a pension over next 17 years if you wish to obtain at the beginning of every month an amount of 1,500.00. The financial institution providing you the pension plan is offering an interest rate of 2.7 % annually and the interest is calculated on the monthly basis.

Solution:

$$B^0 = 1500 * \frac{1 - \frac{1}{(1 + \frac{0.027}{12})^{12*17}}}{1 - \frac{1}{(1 + \frac{0.027}{12})}}$$

$$B^0 = 245724.21$$

For the case of after payment

$$B^1 = 1500 * \frac{1 - \frac{1}{(1 + \frac{0.027}{12})^{12*17}}}{\frac{0.027}{12}}$$

$$B^1 = 245172.57$$