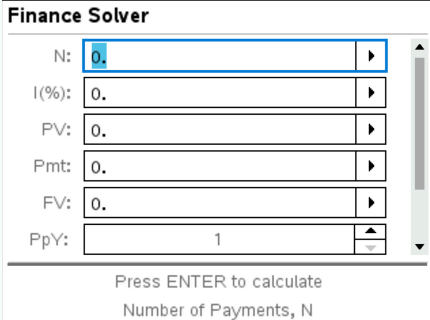


## 1.4 Compound interests

The very useful **Finance Solver** can be used for various compound interest problems. We will first present you the solver, and then do an example.

### 1.4.1 Presentation of Finance Solver

To access it, press , select Finance > Finance Solver:



The screenshot shows the Finance Solver interface with the following fields:

- N: 0.
- I(%): 0.
- PV: 0.
- Pmt: 0.
- FV: 0.
- PpY: 1

Below the fields, it says: "Press ENTER to calculate Number of Payments, N"

**N** is the total **N**umber of compounding periods (years  $\times$  compounding periods per year).

**I(%)** is the **I**nterest rate (in percentage, so entering 5 means “5%”).

**PV** is the **P**resent **V**alue (the value at the start of the loan).

**PmT** is the **P**ay**M**en**T** at each period.

**FV** is the **F**inal **V**alue (the value at the end).

**PpY** is the **P**ayments per **Y**ear.

**CpY** is the **C**ompounding periods per **Y**ear.

**PmTAt** is to set **P**aymen**T**s due **A**t the beginning or the end of each period.



Enter cash inflows as positive numbers and cash outflows as negative numbers

### 1.4.2 Example of computation

You have found a car you would like to buy. You can afford payments of 250\$ at the end of each month for four years. The car costs 9,000\$. Your bank offers an interest rate of 5%, compounded monthly. What will your payments be? Can you afford it?


① Press  , select Finance > Finance Solver, and fill the app the following way:

|       |      |   |
|-------|------|---|
| N:    | 48   | ▶ |
| I(%): | 5    | ▶ |
| PV:   | 9000 | ▶ |
| Pmt:  | 0    | ▶ |

**PV** is positive because the car counts as cash inflow

|        |     |    |
|--------|-----|----|
| FV:    | 0.  | ▶  |
| PpY:   | 12  | ▲▼ |
| CpY:   | 12  | ▲▼ |
| PmtAt: | END | ▶  |

**FV** is zero because we want to pay for the whole cost of the car at the end

② Select the value that you want to know (here: **PmT**), and press  . The following should be displayed:

**Finance Solver**

|             |                  |    |
|-------------|------------------|----|
| N:          | 48               | ▶  |
| I(%):       | 5                | ▶  |
| PV:         | 9000             | ▶  |
| <b>Pmt:</b> | -207.26364213582 | ▶  |
| FV:         | 0.               | ▶  |
| PpY:        | 12               | ▲▼ |

Edit Payment, Pmt

The **Pmt:** rectangle indicates the value solved

Thus, you **can** afford the car since you would have to pay more or less 207.25\$ (it is displayed as a negative number since it is an outflow of cash) per month, which is less than 250\$!