Time Value of money using Excel

Future Value calculations

1- Open Excel
2- Go to (Insert) tap
3- Choose (Function)
4- In the (insert function) box
Select financial from the (select category) menu
5- From (select a function) menu, choose FV and click OK

![Insert Function dialog box]

- **FV**
  - **FvSchedule**
  - **FVSCHEDULE**
  - **Intrate**
  - **INTRATE**
  - **IPMT**
  - **IRR**

**FV(rate,nper,pmt,pv,type)**

Returns the future value of an investment based on periodic, constant payments and a constant interest rate.
5- In (function argument) box, enter
i (decimal) in the rate window text
n in the Nper window text
0 in the pmt window text
PV in the PV window text
0 in the type window text

Then click OK

6 - Look at the formula result to find the FV
Note:
Rather than entering each value manually, you can choose the cell(s) that include the variable from the speared sheet.

Example:
1- Input the values in the sheet as follows:
2- Select the cell that contain the specific value in (function argument) box
By clicking on this button

Returns the future value of an investment based on periodic, constant payments and a constant interest rate.

Rate is the interest rate per period. For example, use 6%/4 for quarterly payments at 6% APR.
3- For the Rate argument, a text window will open and also your original spreadsheet will open. Select by the mouse the cell that contains the rate value.

4- The cell number will automatically appear in the text window.

5- Click this button to close the text window.

6- Repeat steps (2 to 5) for all other inputs.
**Present Value calculations**

From (select a function) menu, choose PV and click OK

![Insert Function dialog box](image)

**PV(rate,nper,pmt,fv,type)**

Returns the present value of an investment: the total amount that a series of future payments is worth now.
In (function argument) box, enter
i (decimal ) in the RATE window text
n in the Nper text window
0 in the PMT text window
FV in the FV text window
0 in the type text window

Then click OK

6 - Look at the formula result to find the PV
Discount Rate Calculations

From (select a function) menu, choose RATE and click OK

RATE(nper,pmt,pv,fv,type,guess)
Returns the interest rate per period of a loan or an investment. For example, use 6%/4 for quarterly payments at 6% APR.
In (function argument) box, enter
n in the Nper text window
0 in the PMT text window
PV in the PV text window
FV in the FV text window
0 in the type text window

Then click OK

Look at the formula result to find the interest rate
Number of periods calculations

From (select a function) menu, choose NPER and click OK
In (function argument) box, enter
i (decimal) in the RATE window text
0 in the PMT text window
PV in the PV text window
FV in the FV text window
0 in the type text window

Then click OK

Look at the formula result to find the number of periods
Annuities calculations

To calculate Future Value when there are annual payments (annuities), do that:

For Ordinary Annuity:

In (function argument) box, enter
i (decimal) in the RATE text window
n in the Nper text window
PMT in the PMT text window
PV in the PV text window
0 in the TYPE text window (For Ordinary Annuity)

Then click OK

Look at the formula result to find the future value
For Annuity Due:

In (function argument) box, enter
i (decimal) in the RATE text window
n in the Nper text window
PMT in the PMT text window
PV in the PV text window
1 in the TYPE text window (For Annuity Due)

Then click OK

Look at the formula result to find the future value
To calculate Present Value when there are annual payments (annuities), do that:

**For Ordinary Annuity:**

In (function argument) box, enter
i (decimal) in the RATE text window
n in the Nper text window
PMT in the PMT text window
FV in the FV text window
0 in the TYPE text window (For Ordinary Annuity)

Then click OK

Look at the formula result to find the present value
For Annuity Due:

In (function argument) box, enter
i (decimal) in the RATE text window
n in the Nper text window
PMT in the PMT text window
FV in the FV text window
1 in the TYPE text window (For Annuity Due)

Then click OK

Look at the formula result to find the future value
The Present Value of Uneven Cash Flows

Enter the cash flows in order starting from CF1 in the spread sheet And also enter the interest rate.

Choose the NPV function form the list of financial functions And press OK
When the function argument box open, use the cell selector button to choose the relevant variables.

NPV(rate, value1, value2, ...)

Returns the net present value of an investment based on a discount rate and a series of future payments (negative values) and income (positive values).

Rate: is the rate of discount over the length of one period.
For cash flows, drag the cursor on the cash flows to select them.

Look at the formula result to find the present value.