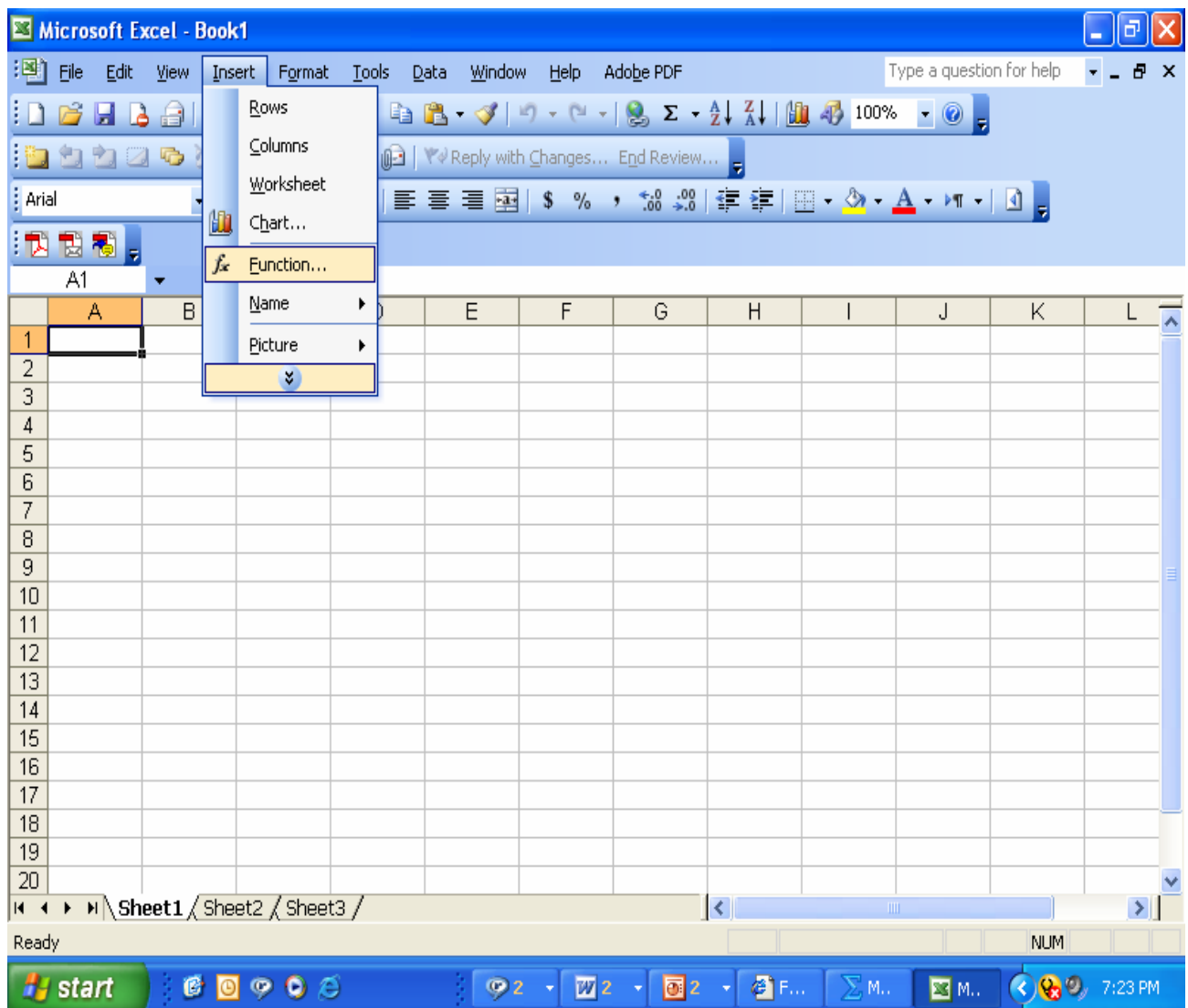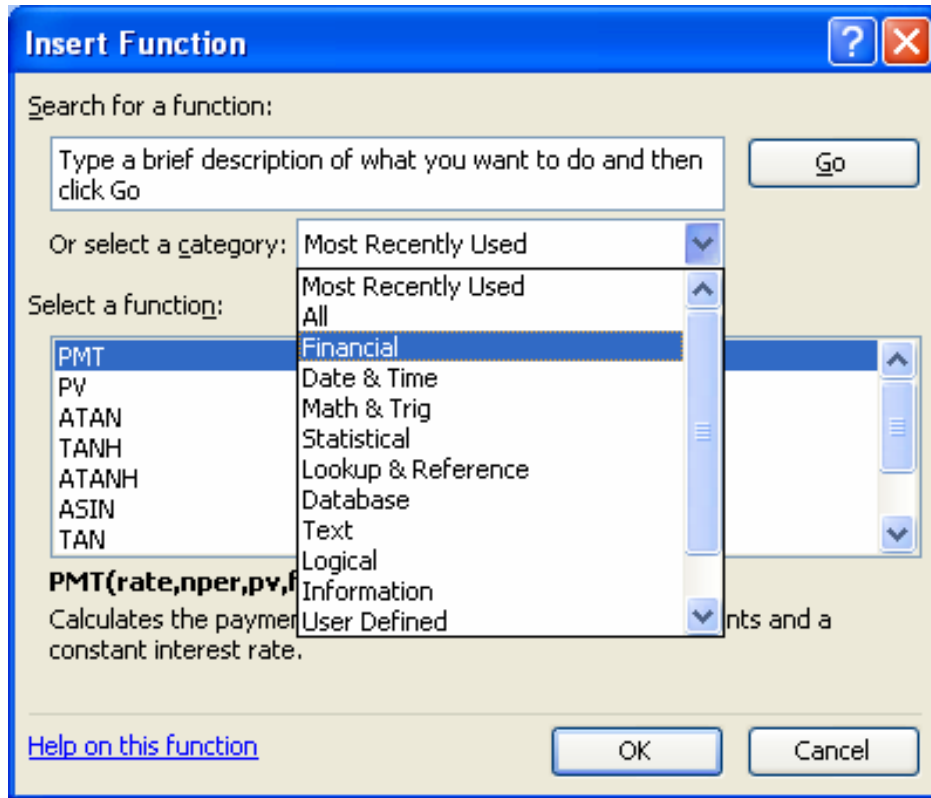# Time Value of money using Excel

Future Value calculations
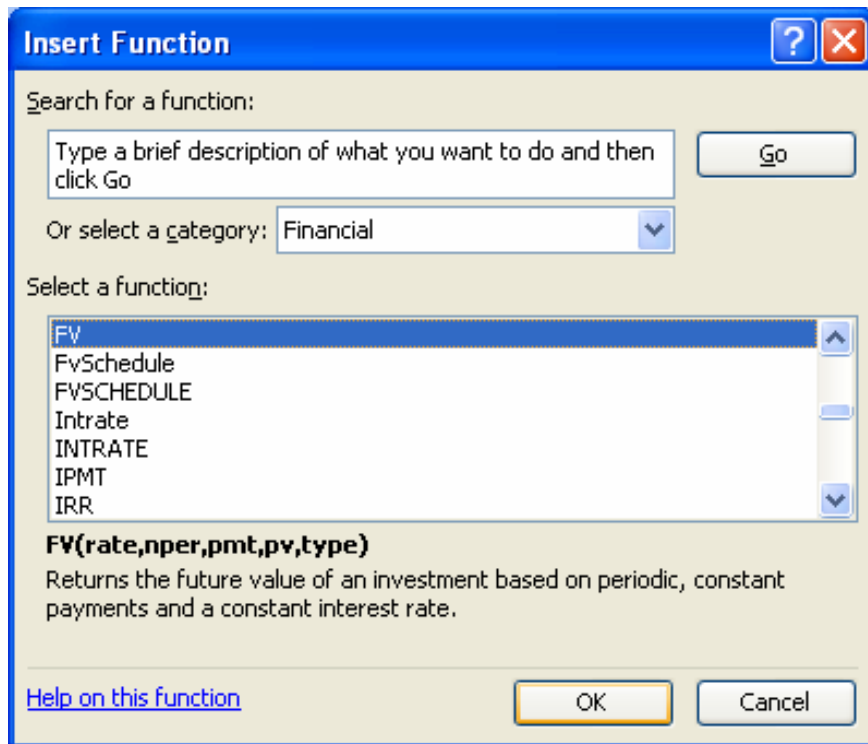
1- Open Excel
2- Go to (Insert) tap
3- Choose (Function)

4- In the (insert function) box
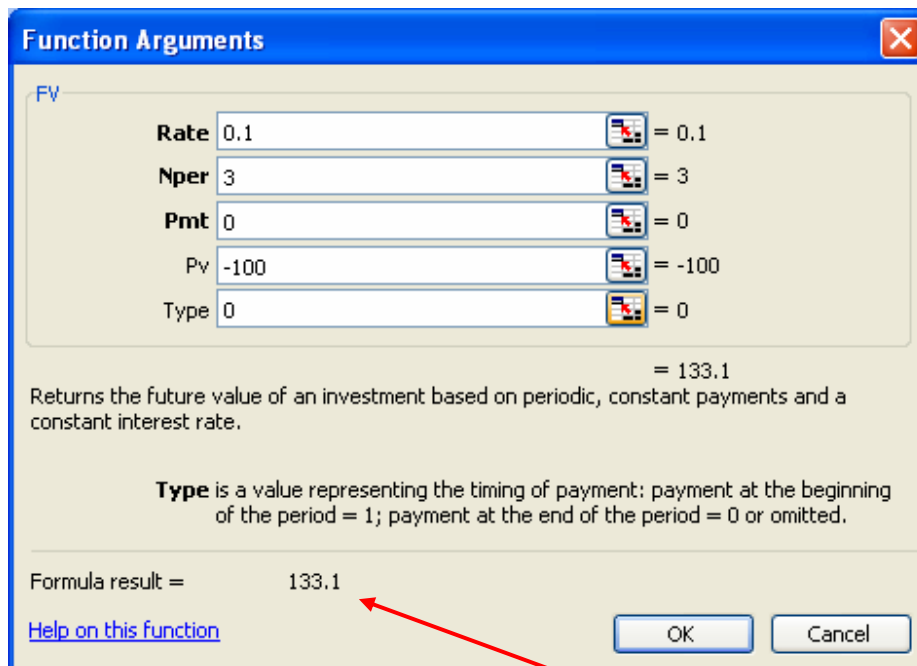**Select financial form the (select category) menu**

5- From (select a function) menu, choose FV and click OK

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

Function Arguments

FV

Rate	0.1		= 0.1
Nper	3		= 3
Pmt	0		= 0
Pv	-100		= -100
Type	0		= 0

= 133.1

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

Type is a value representing the timing of payment: payment at the beginning of the period = 1; payment at the end of the period = 0 or omitted.

Formula result =   133.1

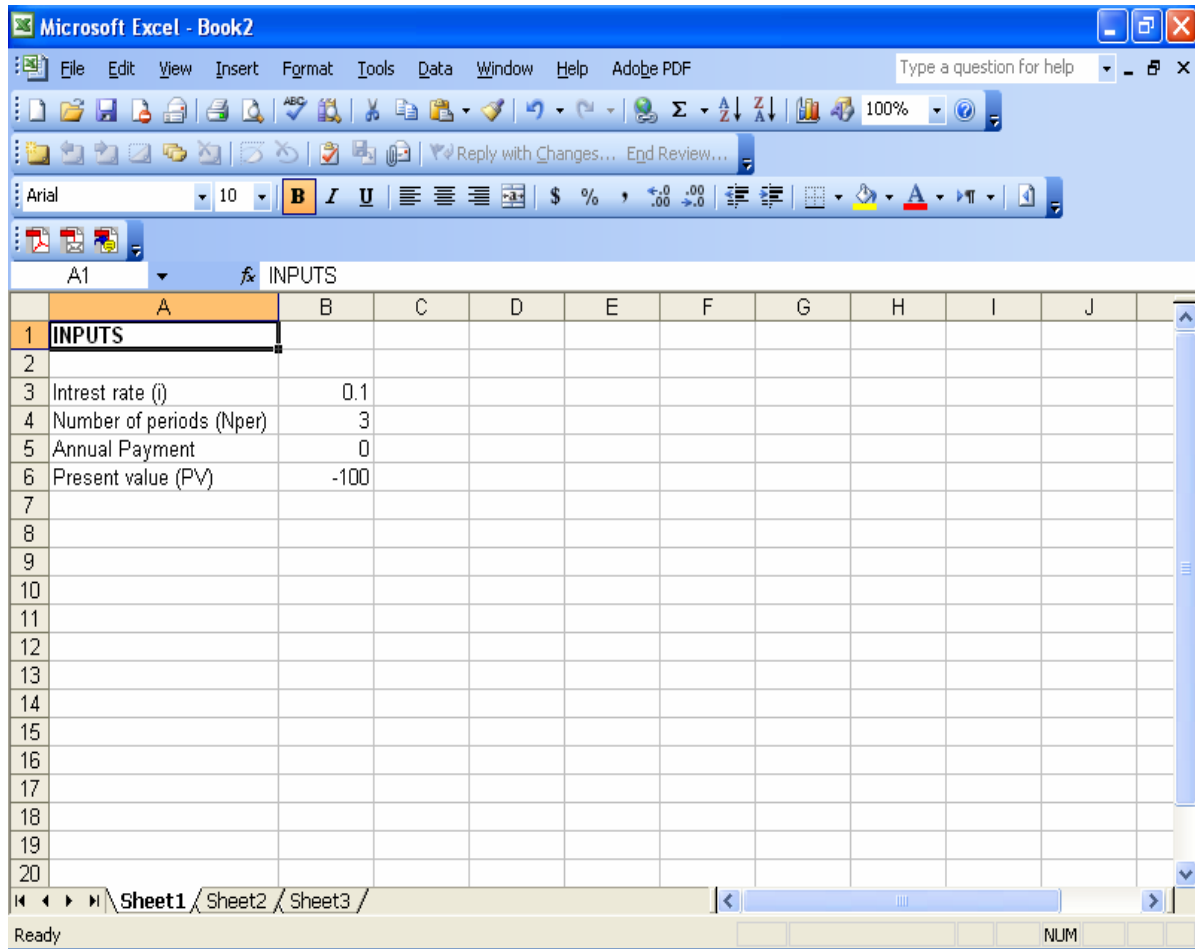Help on this function   OK   Cancel

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:

	A	B
1	INPUTS	
2		
3	Intrest rate (i)	0.1
4	Number of periods (Nper)	3
5	Annual Payment	0
6	Present value (PV)	-100

**2- Select the cell that contain the specific value in (function argument) box
By clicking on this button**

3- For the Rate argument, A text window will open and also your original spreadsheet will open. Select by the mouse the cell that contain the rate value

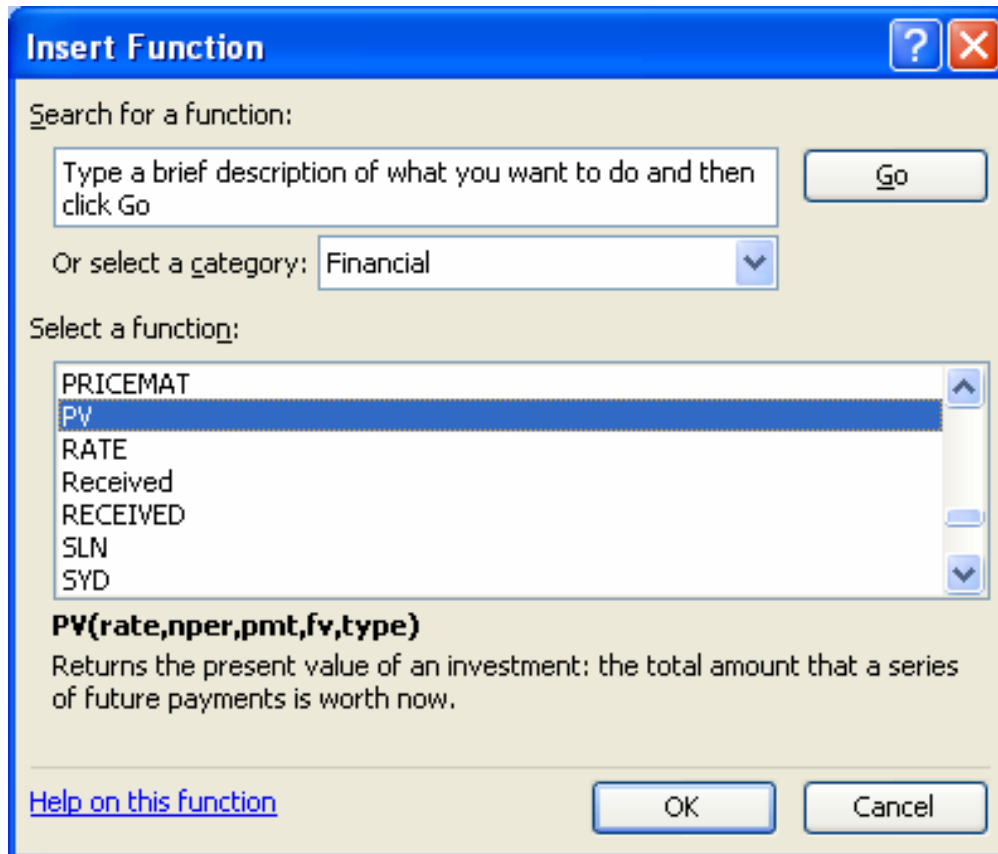**4- The cell number will automatically appear in the text window**

5- Click this button to close the text window
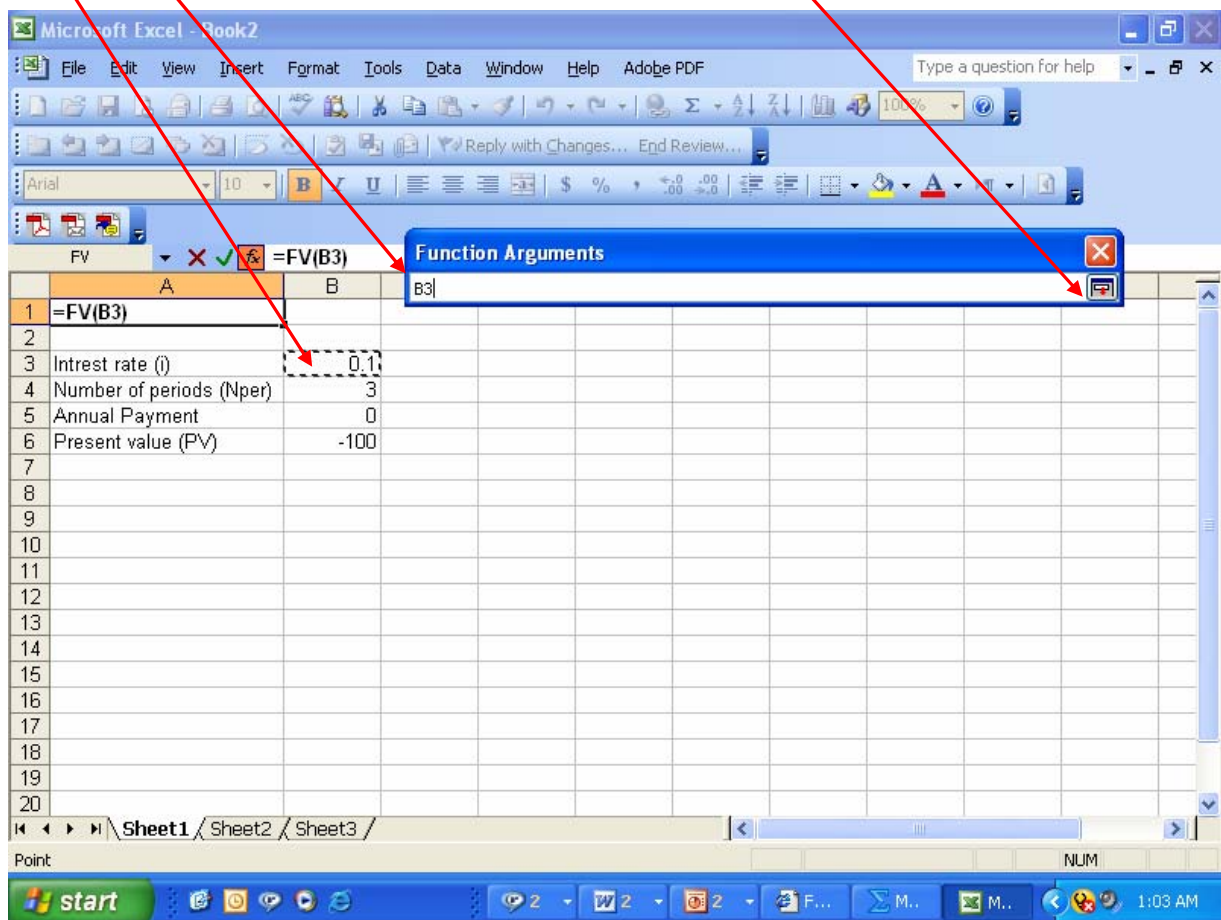
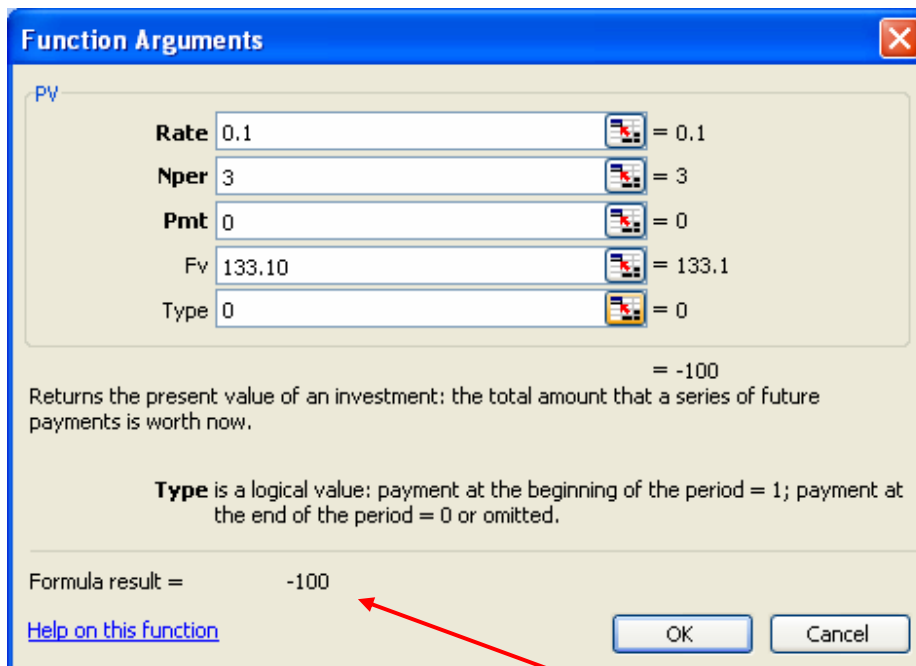**6-Repeat steps (2 to 5) for all other inputs**

Present Value calculations

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

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
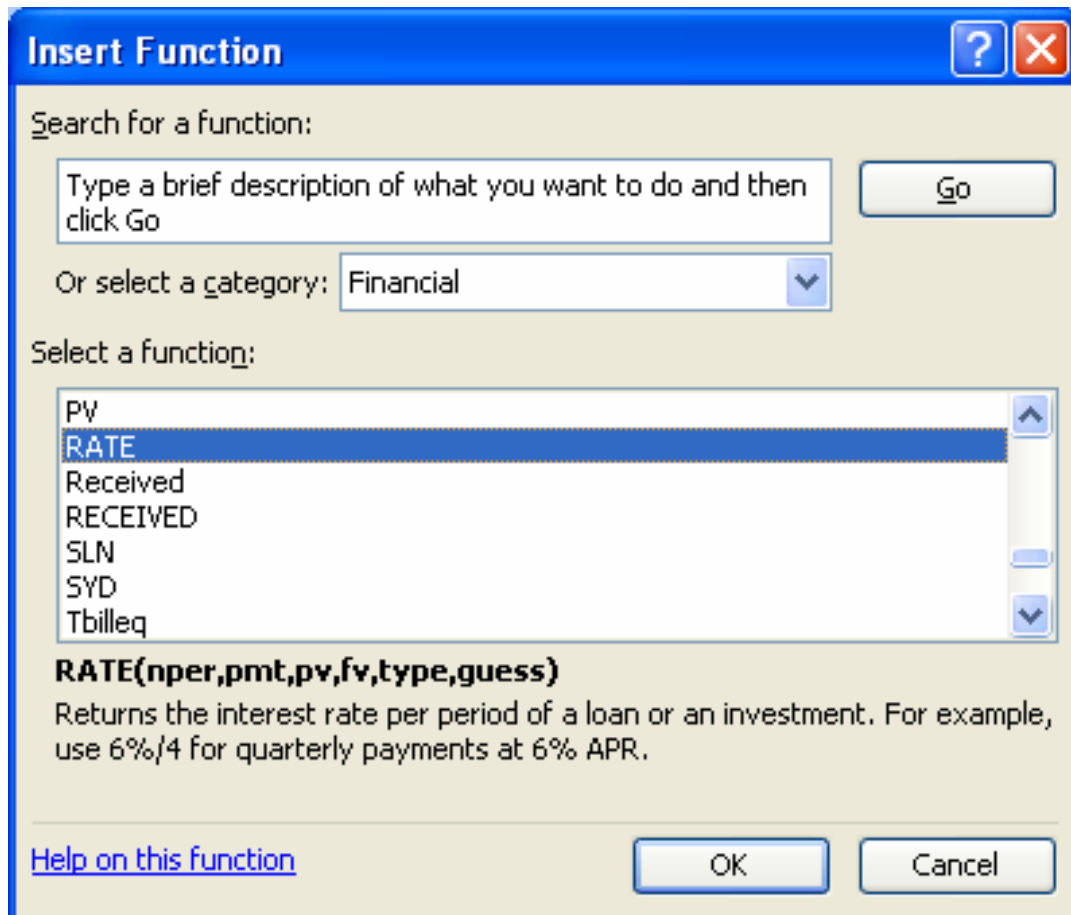**0 in the type text window**

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

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)
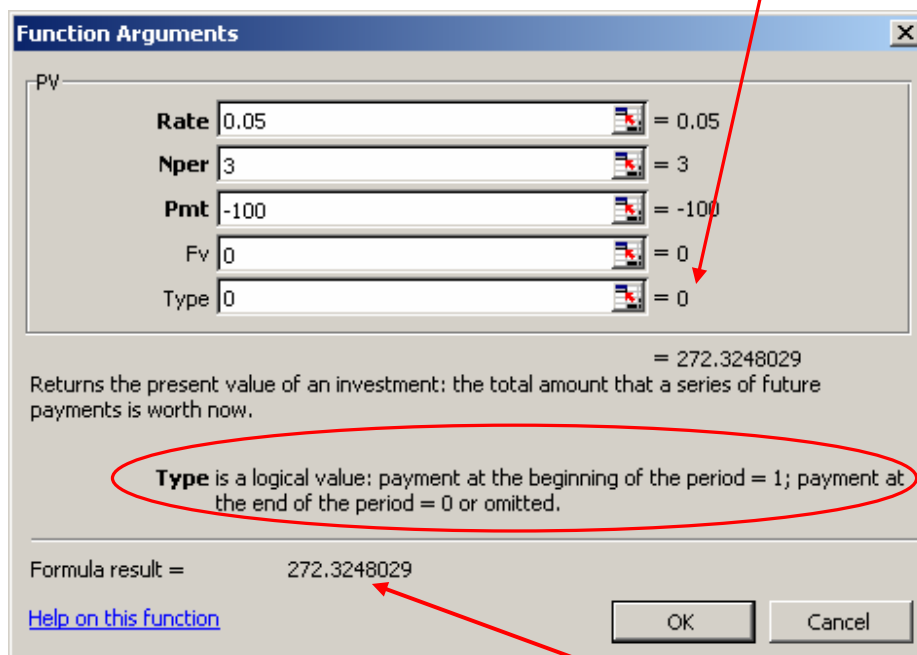
Then click OK

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)
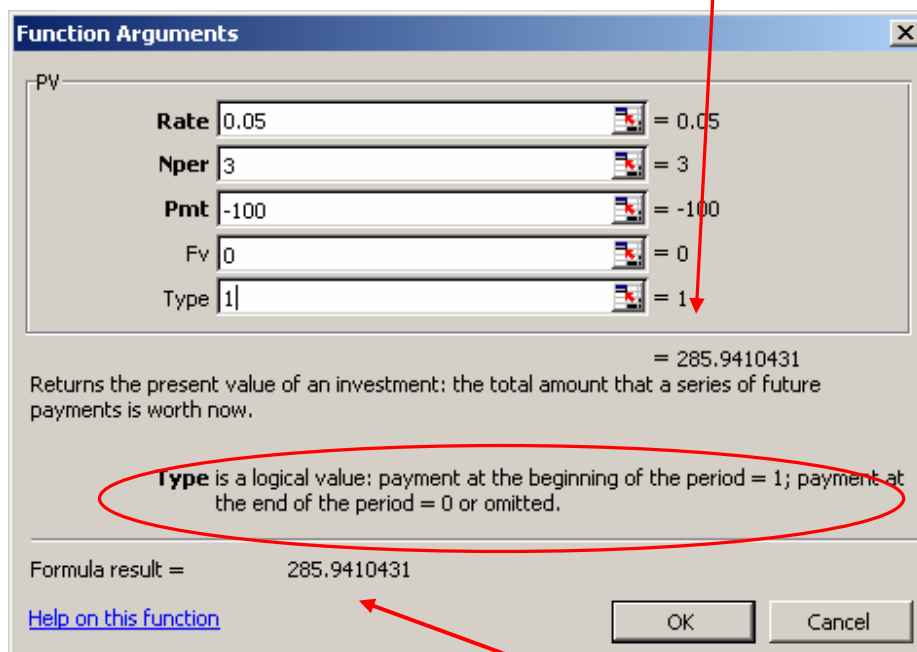
Then click OK

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
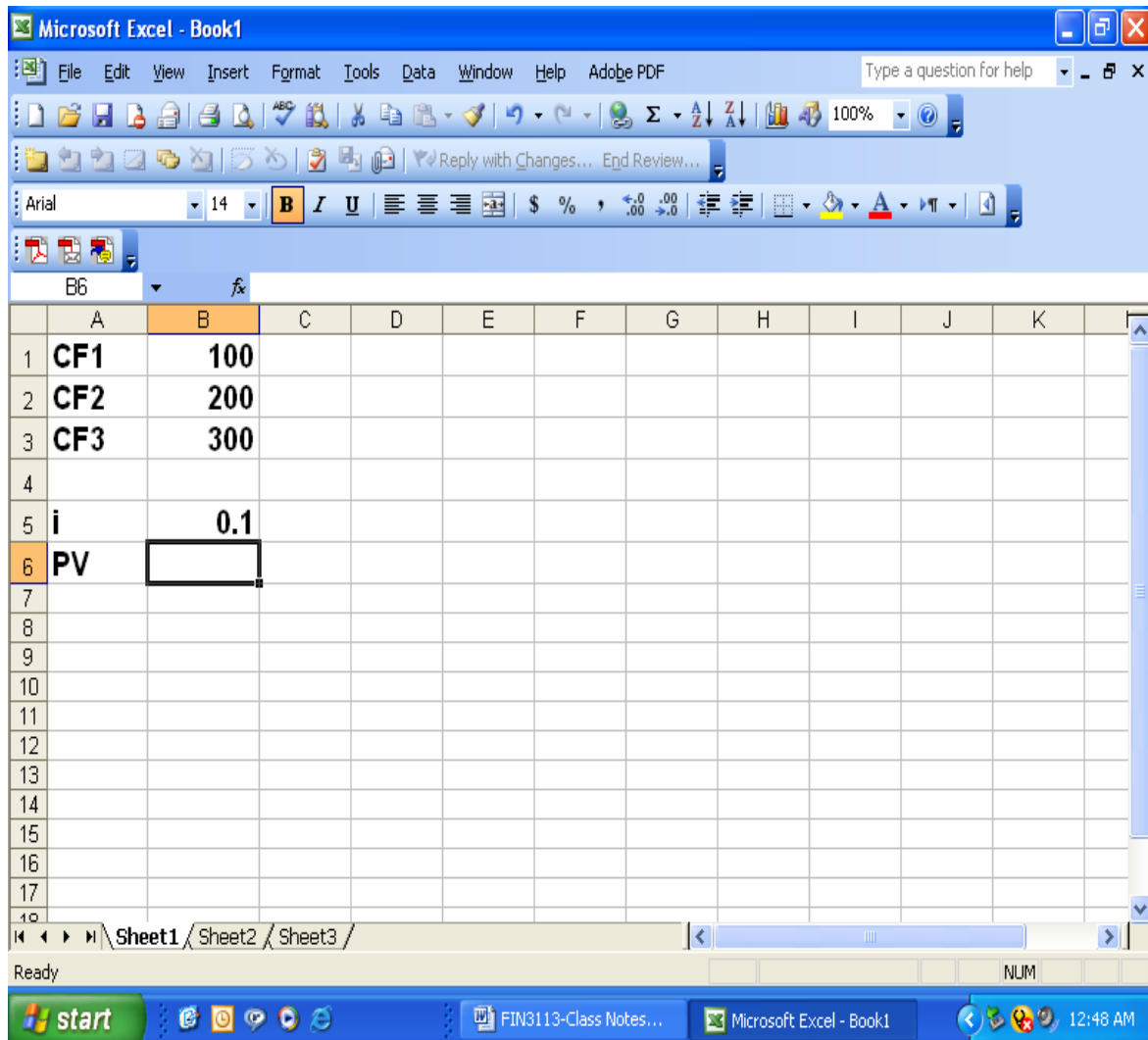**1 in the TYPE text window (For Annuity Due)**
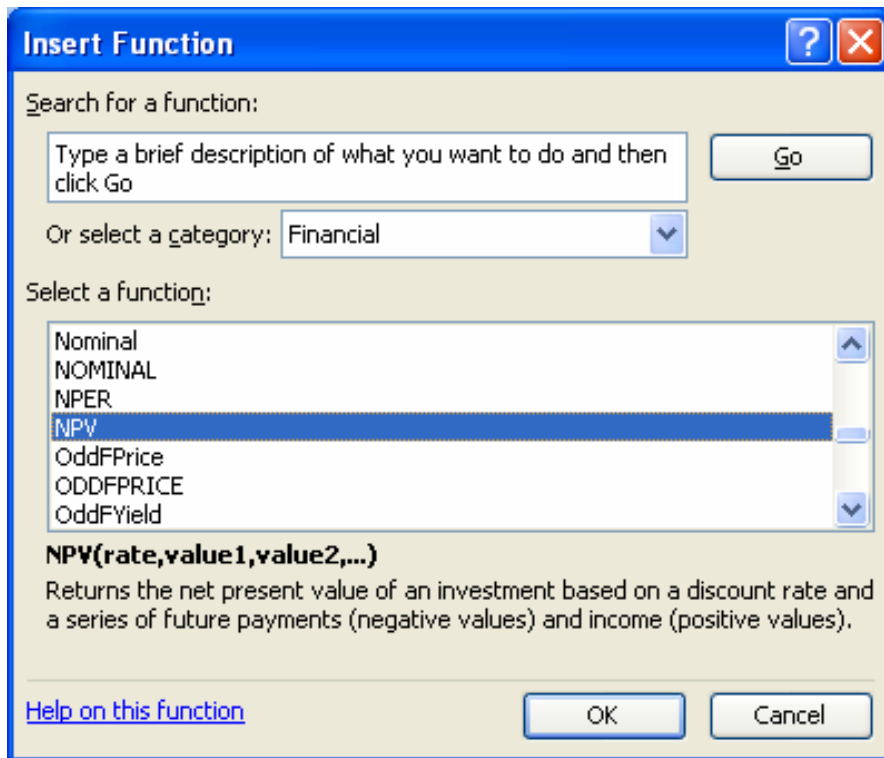
Then click OK

Look at the formula result to find the future value

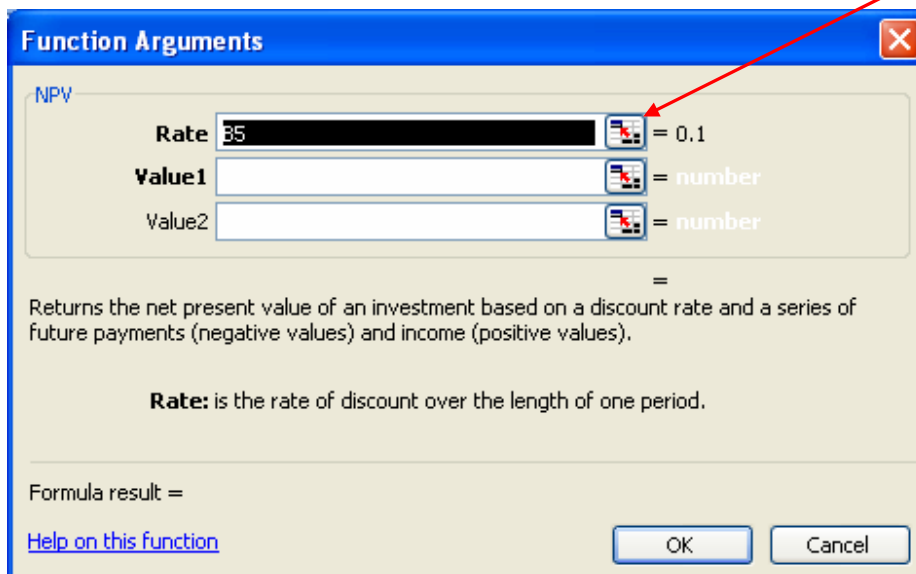## The Present Value of Uneven Cash Flows

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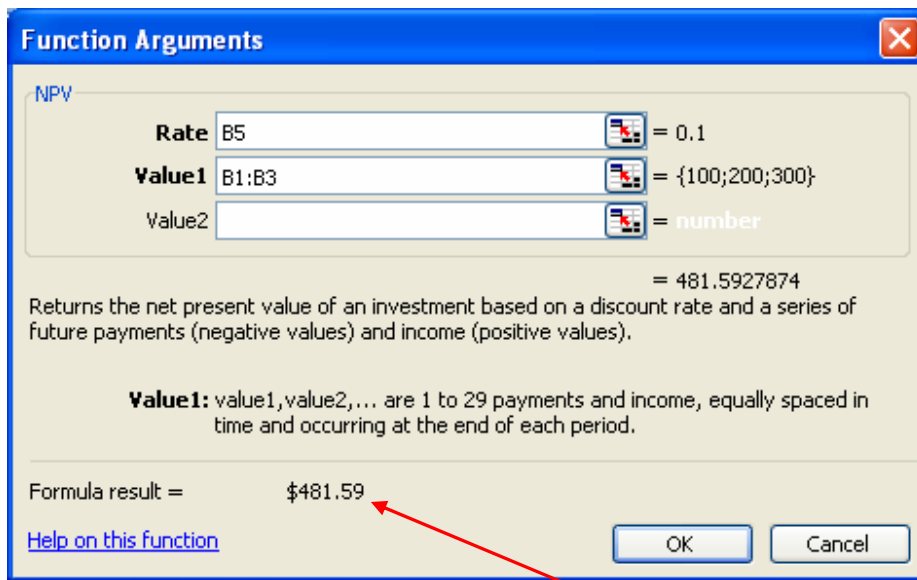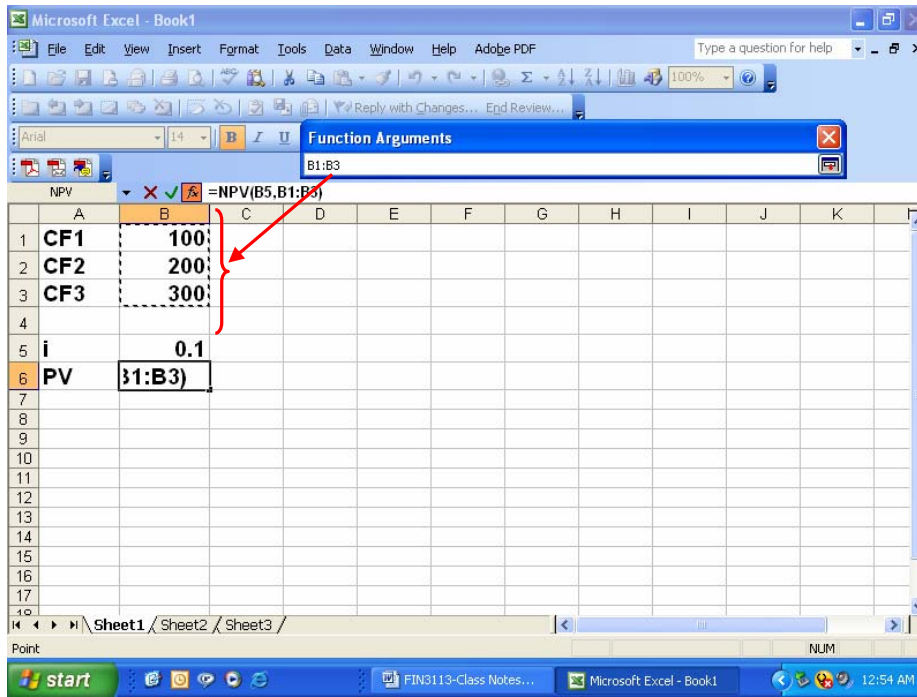And also enter the interest rate.

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.

For cash flows, drag the cursor on the cash flows to select them.

Look at the formula result to find the present value.