



5 FUNCTIONS IN EXCEL YOU NEED TO KNOW

Part II



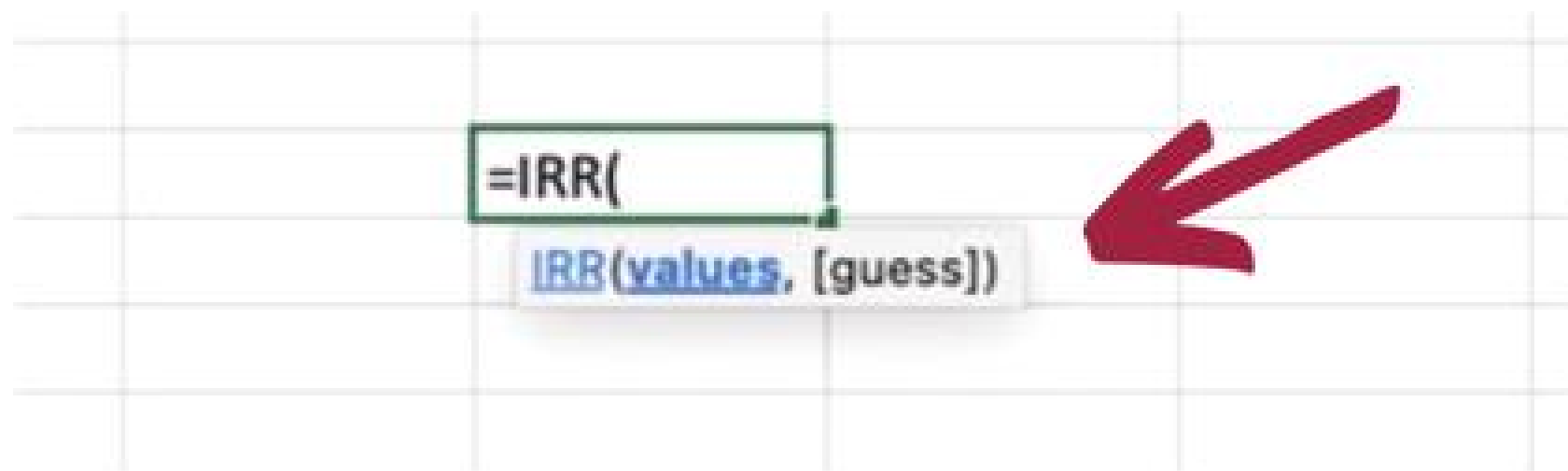
Microsoft Excel is an important tool used by Investment Bankers and Financial Analysts.

They spend more than 70% of their time preparing Excel models, valuations, performing calculations, building graphs, etc.

Here's 5 Functions you wished you knew earlier –

Internal Rate of Return (IRR)

It is used to calculate the expected compound annual rate of return on a project or investment.



IRR(values, [guess])

Values = Positive or negative cash

[Guess] = An assumption of what you flows (an array of values)

think IRR should be

IRR EXAMPLE

Question: Here is a series of data from which we need to find the IRR –

Details	Cash Flows
Initial Investment	-\$600,000
Return from 1st year	\$180,000
Return from 2nd year	\$180,000
Return from 3rd year	\$200,000
Return from 4th year	\$210,000
Return from 5th year	\$230,000

Solution: We use the formula as follows –

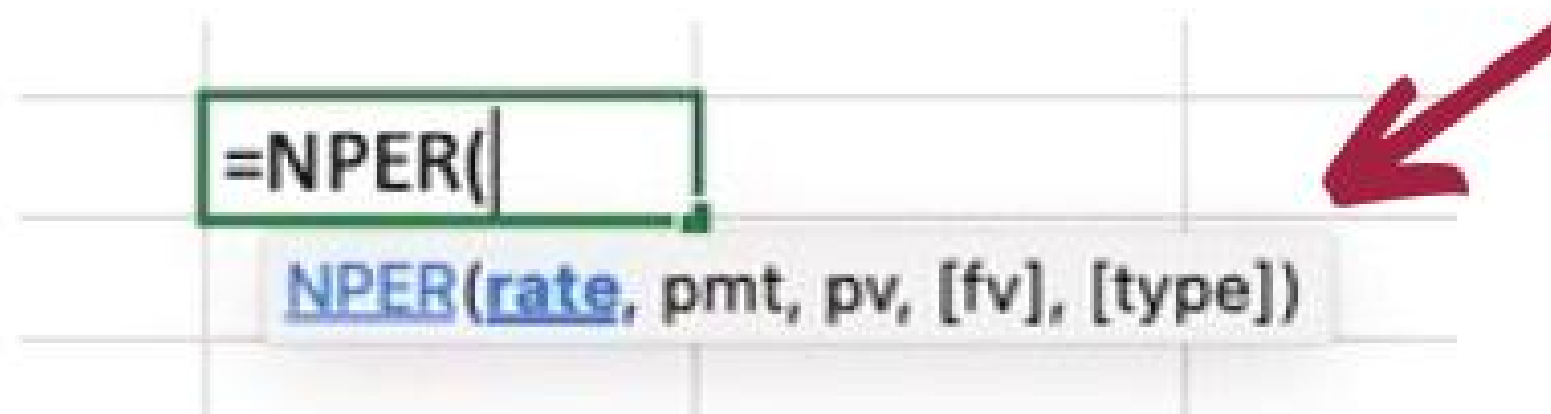
Year	Cash Flows
0	-\$600,000
1	\$180,000
2	\$180,000
3	\$200,000
4	\$210,000
5	\$230,000

`=IRR(G52:G57)`

=IRR(G52:G57)
= 19%

NPER

It calculates the number of periods required to pay off a loan through regular periodic payments and at a fixed interest rate.



NPER(rate,pmt,pv,[fv],[type])

Rate = Interest rate/period

PMT = Amount paid per period

PV = Present Value

[FV] = An optional argument about the future value of a loan

[Type] = When the payment is made

NPER EXAMPLE

Question: Assume that the loan amount is \$70,000 and interest rate is 5%, with monthly payments of \$700. Calculate the number of periods required to repay the loan.

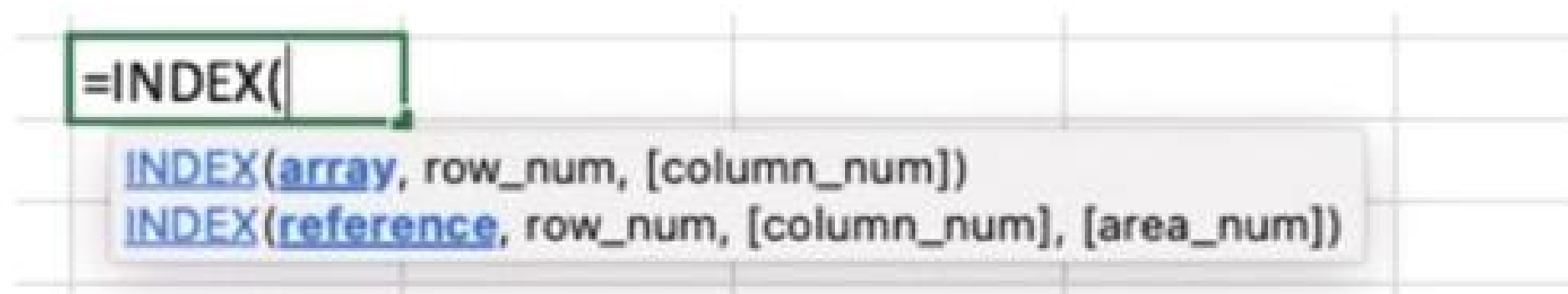
Solution: We use the formula as follows –

Details	Amount
Loan Amount	\$70,000
Interest Rate	5%
Monthly Payment	\$700
Compounding periods per year	12
	130 ×
Periods(terms in months)	=NPER(C6/12,C7,-C5)

=NPER(C6/12,C7,-C5)
= 130 months

INDEX

It pinpoints a value or the reference to a value from within a table or range. It is used to retrieve individual values, or entire rows and columns.



INDEX = (array,row_num, [column_num])

Array: Array is defined as the specific range of cells

row_num: It denotes the position of the row in the specified array.

[column_num]: It denotes the position of the column in the specified array.

INDEX EXAMPLE

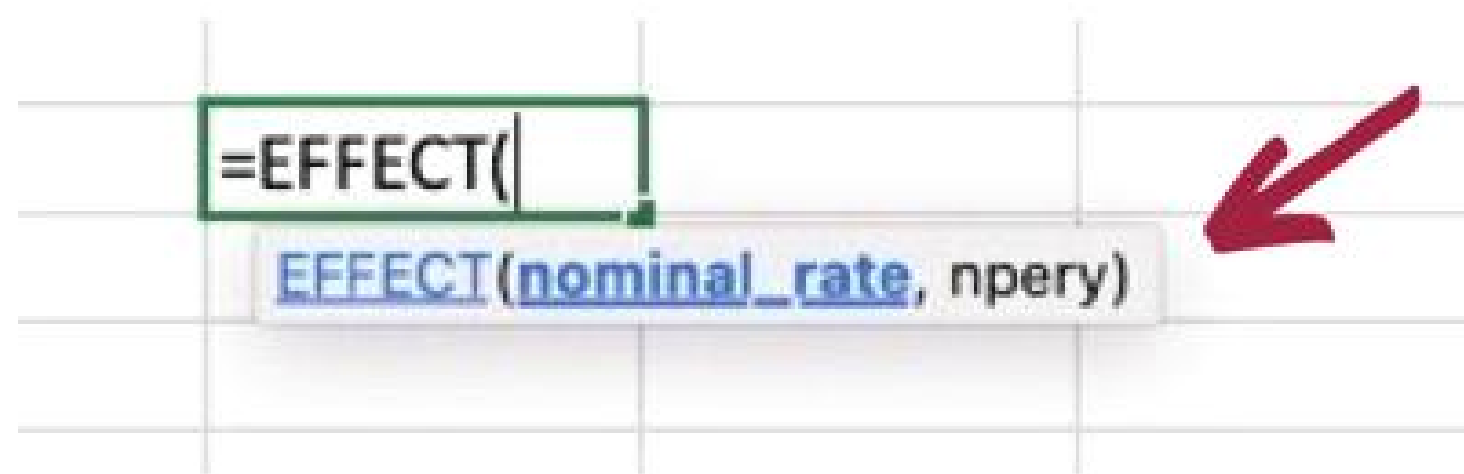
The INDEX Formula is useful to get a particular value from a row or column. Assume you want to get the 4th value from the 3rd column of the table.

	A	B	C	D	E	F
1	Department	2016	2017	2018	2019	2020
2	Accounting & Finance	\$17,500	\$18,000	\$18,300	\$19,200	\$21,100
3	Human Resource	\$15,000	\$17,500	\$17,600	\$18,230	\$19,800
4	Marketing & Sales	\$28,000	\$30,000	\$34,000	\$35,500	\$45,000
5	Research & Development	\$31,000	\$39,000	\$40,000	\$43,000	\$49,800
6	Production	\$19,500	\$26,700	\$28,100	\$28,800	\$32,100
7	Purchasing	\$18,000	\$23,000	\$25,550	\$28,500	\$32,540
8			\$39,000 x			
9			=index(C2:C7,4)			

Explanation: Returns the value at the 4th row within column C2 to C7. The result is \$39,000

EFFECT

It is used to calculate the effective annual interest rate, using the nominal interest rate and the number of compounding periods per year.



EFFECT = (Nominal_Rate, NPERY)

Nominal_Rate = Nominal Interest Rate

NPERY = Number of compounding periods per year

EFFECT EXAMPLE

Question: Payment must be made at a nominal interest rate of 12%, with a total of 12 compounding periods per year.

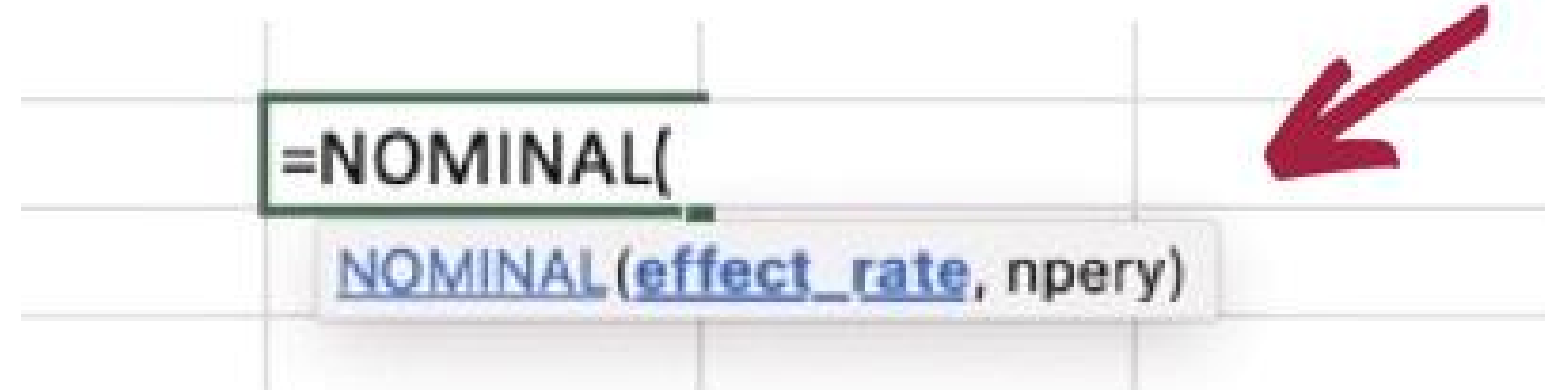
Solution: We use the formula as follows –

Nominal Interest Rate	12%
Compounding per year	12
Effective Interest Rate	<code>=effect(C3,C4)</code>

**=EFFECT (12%, 12)
= 13%**

NOMINAL

It calculates the nominal interest rate, using the effective annual interest rate and the number of compounding periods per year.



NOMINAL = (Effect_Rate, NPERY)

Effect_Rate = Effective annual interest rate
NPERY = Number of compounding periods per year

NOMINAL EXAMPLE

Question: Payment must be made at a nominal interest rate of 15%, with a total of 12 compounding periods per year.

Solution: We use the formula as follows –

Effective Interest Rate	15%
Compounding per year	12
	<code>=NOMINAL(C3,C4)</code>

=NOMINAL (15%, 12)
= 14%

NOTE: The difference between EFFECT and NOMINAL function is - Nominal interest rate doesn't take into account the effect of compounding but the effective interest rate does.