

	B	C	D	E	F	G	H	I	J	K	L	M	N
1													
2	Excel's Golden Rule: If an Excel solution input can change, put it into a cell, label it, and refer to it with a cell reference / table reference.												
3	Excel Model: An Excel solution built to solve a problem, make calculations or perform data analysis that can be used more than 1 time.												
4	Why Excel's Golden Rule?												
5	1) It provides good documentation of the worksheet solution/model so it is easy to understand.												
6	2) It makes it easy to update the solution/model later.												
7	3) It reduces errors because you do not "Hard Coding" inputs into formulas.												
8	Research has shown that a common error in spreadsheets is "Hard Coding":												
9	http://www.strategy-at-risk.com/2009/03/03/the-risk-of-spreadsheet-errors/												
10													
11	Task at Hand:												
12	BECU Bank issues a 30 year \$450,000 mortgage with an APR of 8%, compounded monthly												
13	Build a schedule that shows how much interest is paid for each monthly payment												
14													
15	Loan Amount = PV = Present Value	450000											
16	Annual Percentage Rate = APR	0.06											
17	Years	30											
18	Periods per Year = PPY	12											
19	Total Periods = PPY*Years	360			C19: =C18*C17								
20	Period Rate = APR/PPY	0.0050			C20: =C16/C18								
21	Monthly PMT	-2697.9774			C21: =-C15/((1-(1+C20)^-C19)/C20)								
22	Monthly PMT	-2697.9774			C22: =PMT(C20,C19,C15)								
23													
24													
25	Periods	Monthly PMT	Interest Paid to Bank	Balance Reduction	Loan Balance	Perio ds	Monthly PMT	Interest Paid to Bank	Balance Reduction	Loan Balance			
26	0				450000.00	0				450000.00	F25: =C15		
27	1	2697.98	2250.00	447.98	449552.02	1	2697.98	2250.00	447.98	449552.02	C26: =-\$C\$22		
28	2	2697.98	2247.76	450.22	449101.81	2	2697.98	2247.76	450.22	449101.81	D26: =F25*\$C\$20		
29	3	2697.98	2245.51	452.47	448649.34	3	2697.98	2245.51	452.47	448649.34	E26: =C26-D26		
30	4	2697.98	2243.25	454.73	448194.61	4	2697.98	2243.25	454.73	448194.61	F26: =F25-E26		
31	5	2697.98	2240.97	457.00	447737.60	5	2697.98	2240.97	457.00	447737.60	H25: =SEQUENCE(C19+1,,0)		
32	6	2697.98	2238.69	459.29	447278.31	6	2697.98	2238.69	459.29	447278.31	L25: =LET(pv,C15,VSTACK(pv,pv+CUMPRINC(C20,C19,pv,1,SEQUENCE(C19),0)))		
33	7	2697.98	2236.39	461.59	446816.73	7	2697.98	2236.39	461.59	446816.73	I26: =SEQUENCE(C19,-,C21,0)		
34	8	2697.98	2234.08	463.89	446352.83	8	2697.98	2234.08	463.89	446352.83	J26: =-IPMT(C20,DROP(H25#,1),C19,C15)		
35	9	2697.98	2231.76	466.21	445886.62	9	2697.98	2231.76	466.21	445886.62	K26: =I26#-J26#		
36	10	2697.98	2229.43	468.54	445418.08	10	2697.98	2229.43	468.54	445418.08			
37	11	2697.98	2227.09	470.89	444947.19	11	2697.98	2227.09	470.89	444947.19			
38	12	2697.98	2224.74	473.24	444473.95	12	2697.98	2224.74	473.24	444473.95			
39	13	2697.98	2222.37	475.61	443998.34	13	2697.98	2222.37	475.61	443998.34			
40	14	2697.98	2219.99	477.99	443520.35	14	2697.98	2219.99	477.99	443520.35			
41	15	2697.98	2217.60	480.38	443039.98	15	2697.98	2217.60	480.38	443039.98			
42	16	2697.98	2215.20	482.78	442557.20	16	2697.98	2215.20	482.78	442557.20			
43	17	2697.98	2212.79	485.19	442072.01	17	2697.98	2212.79	485.19	442072.01			
44	18	2697.98	2210.36	487.62	441584.39	18	2697.98	2210.36	487.62	441584.39			

Financial Variable Name	Math Symbol	Excel Function Argument
Annual Rate (APR), Discount Rate, Rate of Return	i	
Compounding Periods per year	n	
Years	x	
Period Rate	i/n	rate
Total Number of Compounding Periods	x*n	nper
Present Value	PV	pv
Future Value	FV	fv
Periodic Cash Flow / Periodic Payment	PMT	pmt

** PV, FV and pmt arguments in Excel must have the correct Cash Flow Direction.

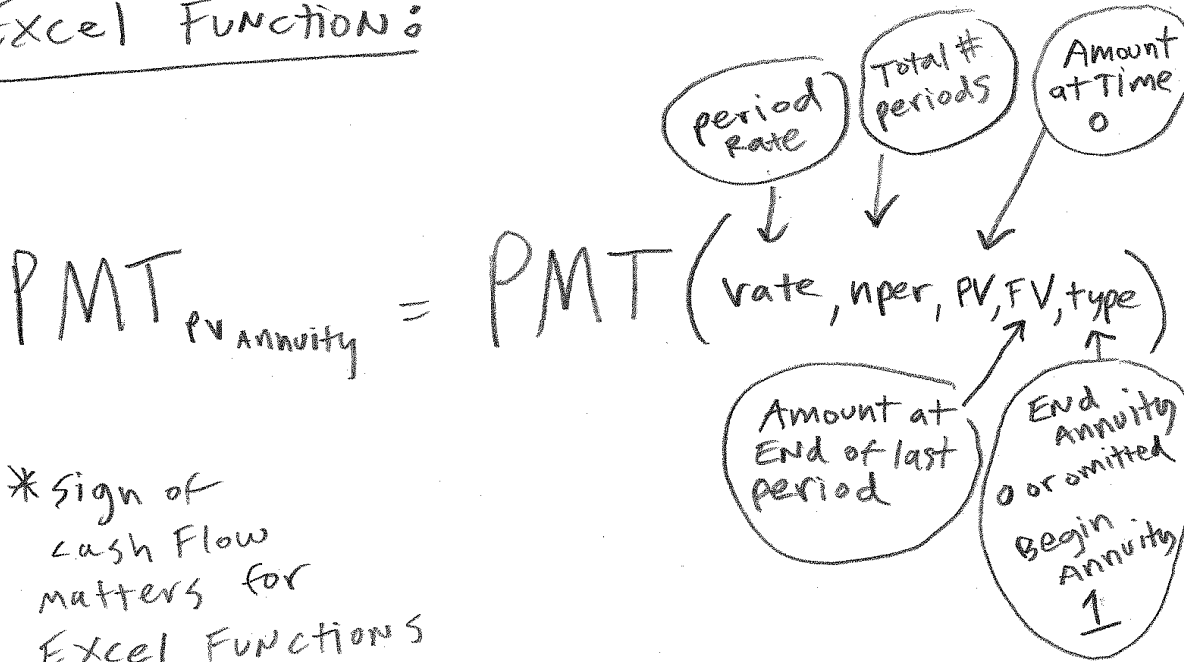
Math Formulas:

$PV_{Annuity}$

$$PMT_{PV_{Annuity}} = \frac{1 - (1 + \frac{i}{n})^{-(x*n)}}{(\frac{i}{n})}$$

← minus

Excel Function:



* Sign of cash flow matters for Excel Functions