

Systematic Business Calculator

PC based business calculator for beginners and finance professionals

Systematic Business Calculator

Contract Type: Starting on 07-Dec-01, 3 rentals of £92,876.18 + 2 rentals of £0 + 9 quarterly rentals of £92,876.18 + 2 rentals of £0 + FV of £100,000.00 on 07-Jun-05

No of Rental Periods (N): 3 years and 9 months

Payment Interval: Effective rate (APR) 14.75% : Period 3.50% : Simple 8.50%

Interest Rate % (INT): % Net advance £721,371.46 : 72.14%

Present Value (PV): Deposit of 3 payments of £92,876.18

Deposit: 9 net quarterly payments of £92,876.18 : 9.29% : Rate/1,000: £92.88

Payment (PMT): Total deposit: £278,628.54 : 27.86%

No of Payments at Start: Rentals assumed to be in arrears for multiple rentals : Total payable: £1,214,514.16 : Total charges: £214,514.16 : 21.45% : Actual interest rate : 14.00% from 26 iterations

Initial Nil Payment Periods: Residual or future value is 10.00% of PV

Advance/Arrears: NPV: £1,026,372.95 : Margin: £26,372.95 : 2.64%

Terminal Nil Payment Pause:

Future Value (FV):

Borrowing Interest Rate %: %

Solve for PMT: Quarterly Payment (PMT) is £92,876.18

N INT PV **PMT** FV Clear Quick Calculator Amortn Depn DCF Bonds Exit

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Regular Payment (PMT) Calculated 07-Dec-01 11:12

TVM example

Systematic Business Calculator — financing alternatives

- Clear screens for structuring financial calculations comprising:
 - Time value of money
 - Discounted cash flows
 - Amortisation and depreciation
 - Bonds
- Comprehensive help file with explanations and worked examples
- Ease of use with more functionality than hand-held calculators

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Module	Details
Finance Calculator	5 payment structures – terminal pause, no terminal pause, deposit with terminal pause, deposit without terminal pause, multiple rentals plus initial and terminal pause, deposit with initial and terminal pause
	Calculated N, INT, PV, PMT or FV. Solve missing variable
	Calculated NPV at lower rate for broker sale and margin
	Other information shown– e.g. payment profile, effective and flat rates, % deposit and future value
	Shows APR, periodic rate, simple interest
	Print results
Quick Calculator	Simple arithmetic functions with inputs like a desktop calculator and a screen-based approach with buttons for numbers, operators, %, CHS, REC etc.
	Single structure – N, INT, PV, PMT and FV. Updates from Finance Calculator
	Convert interest rates to effective rate (APR) and back again
	Copy result to FinCalc or DCF – so that you can calculate e.g. a net advance and then insert it into the DCF calculations
Amortisation Schedule	Details of payment profile shown on labels for information from Finance Calculator if required
	Schedule – PMT, Principal, Interest and Balance
Depreciation Schedule	Four methods – straight line, sum of digits, declining balance and US MACRS (US tax depreciation)
	Information entered from Finance Calculator if required
	Splits dates and periods automatically
	Include salvage or residual value if required
	Input also capital, salvage and factor (declining balance (DB) and MACRS)
	Schedule – Depreciation, %, Total, WDV and WDV %
Discounted Cash Flows	Allows up to ten sets of cash flows
	Update inputs from Finance Calculator if required
	Calculated NPV, IRR or MIRR
	Calculated also Payback and Accounting Return
	Calculated dates of each set of cash flows and total cash flow amount
Bonds	Enter settlement and maturity dates, coupon, call (100 assumed), payments per annum, and yield or price
	Calculated yield to maturity or price plus simple yield
	Accepts a number of bases – 30/360 (Euro or US), Act/Act, 30/365, Act/365
Options	Set decimal places, date format, currency symbol, max number of cash flows and max iterations

Minimum Computer Requirements:

Pentium processor
 At least 16Mb of RAM
 VGA or SVGA monitor
 Hard disk with at least 25Mb of free storage space
 Mouse or pointing device

Example Problem

Supposing you wanted to calculate a complex structured loan or lease rental over three years at 14% where three periodic rentals are due on signing together with initial and terminal pauses and a final residual value. You could enter the program in your calculator manual, iterate a solution with a spreadsheet or use the *Systematic Business Calculator*.

Here you enter the variables you know and press PMT (Payment) to calculate the rental required directly. The rental to return a yield of 14% is 92,876.18. You get lots of information on the proposal, for example the simple and true rates of interest, and of course, you can always print out the result for future reference.

The screen also displays the dates of the cash flows together with their values. This way it helps to cut down simple input errors and give you a clear idea of the solution.

Notice also that certain of the boxes are greyed out since you do not need them for this structure. The application checks your inputs and will tell you if you have errors or need to input more variables.

Systematic Business Calculator

File Edit View Help

Systematic Business Calculator SYSTEMATIC FINANCE

Contract Type:	E: Rents, Initial/Terminal Pause	Starting on Jan 23, 2002, 3 rentals of \$92,876.18 + 2 rentals of \$0 + 9 quarterly rentals of \$92,876.18 + 2 rentals of \$0 + FV of \$100,000.00 on Jul 23, 2005
No of Rental Periods (N):	12.00	3 years and 9 months
Payment Interval:	Quarterly	Effective rate (APR) 14.75% : Period 3.50% : Simple 8.50%
Interest Rate % (INT):	14.00 %	Net advance \$721,371.46 : 72.14%
Present Value (PV):	-1,000,000.00	Deposit of 3 payments of \$92,876.18
Deposit:	0	9 net quarterly payments of \$92,876.18 : 9.29% : Rate/1,000: \$92.88
Payment (PMT):	92,876.18	Total deposit: \$278,628.54 : 27.86%
No of Payments at Start:	3	Rentals assumed to be in arrears for multiple rentals : Total payable: \$1,214,514.16 : Total charges: \$214,514.16 : 21.45% : Actual interest rate : 14.00% from 26 iterations
Initial Nil Payment Periods:	2	Residual or future value is 10.00% of PV
Advance/Arrears:	0 - Arrears	NPV: \$1,026,372.95. Margin: \$26,372.95 : 2.64%
Terminal Nil Payment Pause:	2	
Future Value (FV):	100,000.00	
Borrowing Interest Rate %:	12.00 %	

Solve for PMT: Quarterly Payment (PMT) is \$92,876.18

N INT PV **PMT** EV Clear Quick Calculator Amortn Deprn DCF Bonds Exit

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Regular Payment (PMT) Calculated 23-Jan-02 20:52

Functions and Discounted Cash Flows

The application comes equipped complete with these functions:

- Financial calculator for solving complex time versus money problems
- Quick calculator for cash flow calculations and interest rate conversions
- Amortisation schedules
- Depreciation by straight line, sum of digits, declining balance and US MACRS tax depreciation
- Discounted cash flows – IRR, NPV and MIRR
- Bonds calculations – price and yield

From the calculator screen you could see the amortisation or display a depreciation schedule using any of the above methods. If you wanted to further structure the proposal you could open the Discounted Cash Flow screen to enter further cash flows and see the result on the interest rate or initial capital value.

Discounted Cash Flows

Group	Number	Amount	Start Date
0	1	-721,371.46	Jan 23, 2002
1	2	0	Apr 23, 2002
2	9	92,876.18	Oct 23, 2002
3	2	0	Jan 23, 2005
4	1	100,000.00	Jul 23, 2005
5			
6			
7			
8			
9			
10			
		15	\$214,514.16
			Oct 23, 2005

Summary Metrics:

- Payment Interval: Quarterly
- Interest Rate % (IRR): 14.00
- Present Value (NPV): -721,371.46
- Payback Period: 2 yrs 5 mths : 9.77 rents
- Accounting Return %: 15.86%
- Borrowing Int. Rate %: 12.00
- NPV at Borrowing Rate %: \$747,744.41
- Margin: \$26,372.95 : 3.66%
- Reinvestment Rate %: 14.00
- MIRR%:
- Effective rate (APR) 14.75% : Period rate 3.50% : Simple rate 8.50% : Total charges of \$214,514.16 equate to 29.74% of the initial cash flow.

Solve for IRR%: Internal Rate of Return (IRR%) is 14.00% per annum

Buttons: NPV | IRR% | MIRR% | Clear | Quick Calculator | Financial Calculator | Exit

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Internal Rate of Return Rate (IRR%) Calculated | 23-Jan-02 20:53

The individual cash flows automatically update and you can calculate the net present value, internal rate of return or the modified internal rate of return.

Amortisation and Depreciation

Alternatively you could view or print the amortisation or depreciation schedule. The former splits the individual payments into interest and capital repayment and also displays the cumulative position.

There are a number of depreciation options including:

- straight line
- declining balance
- sum of digits
- US accelerated cost recovery system

Amortisation Schedule						
PV: \$1,000,000.00 : First payment: \$278,628.54 : Net advance: \$721,371.46 : Total payable: \$1,214,514.16 Nominal interest: 14.00% p. a. : Per period: 3.50% : Effective (APR) rate: 14.75% Payments: Starting on Jan 23, 2002, 3 rentals of \$92,876.18 + 2 rentals of \$0 + 9 quarterly rentals of \$92,876.18 + 2 rentals of \$0 + FV of \$100,000.00 on Jul 23, 2005						
Period	Payment	Principal	Interest	Balance	T Interest	T Principal
1	0	-25,248.00	25,248.00	746,619.46	25,248.00	-25,248.00
2	0	-26,131.68	26,131.68	772,751.14	51,379.68	-51,379.68
3	92,876.18	65,829.90	27,046.28	706,921.24	78,425.96	14,450.22
4	92,876.18	68,133.94	24,742.24	638,787.30	103,168.20	82,584.16
5	92,876.18	70,518.63	22,357.55	568,268.67	125,525.75	153,102.79
6	92,876.18	72,986.78	19,889.40	495,281.89	145,415.15	226,089.57
7	92,876.18	75,541.32	17,334.86	419,740.57	162,750.01	301,630.89
8	92,876.18	78,185.27	14,690.91	341,555.30	177,440.92	379,816.16
9	92,876.18	80,921.75	11,954.43	260,633.55	189,395.35	460,737.91
10	92,876.18	83,754.01	9,122.17	176,879.54	198,517.52	544,491.92
11	92,876.18	86,685.40	6,190.78	90,194.14	204,708.30	631,177.32
12	0	-3,156.79	3,156.79	93,350.93	207,865.09	628,020.53
13	0	-3,267.28	3,267.28	96,618.21	211,132.37	624,753.25
14	100,000.00	96,618.37	3,381.63	-0.16	214,514.00	721,371.62

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