@ Financial Functions

@CTERM(rate,fv,pv)
@CTERM() computes the number of periods required for an investment of PV to grow to FV at RATE.
How long will it take for a $20,000 investment to grow to $40,000 at an annual rate of 5%?
@CTERM(0.05,20000,40000) = 14.2 years

How many months will it take for a $4,000 investment to grow to $8,000, being compounded monthly at a rate of 8%?
@CTERM(8%/12,4000,8000) = 104 months (about 8 1/2 years)

@DDB(cst,slvg,life,per)
Returns the Double Declining Balance depreciation for an asset that cost cst, has a salvage value of slvg, a life of life in period per.
A company buys a delivery van for $12,000. It has a useful life of 5 years and will be worth $2,000 at the end of that time. How much depreciation can the company write off in years 1,2 and 3?

year 1: @DDB(12000,2000,5,1) = $4,800
year 2: @DDB(12000,2000,5,2) = $2,880
year 3: @DDB(12000,2000,5,3) = $1,728

@FV(pmt,rate,per)
Computes the future value of per payments of pmt with the interest rate of rate.
If $2,000 were deposited every year into an account earning 9% annual interest, how much would the account be worth in 20 years?

@FV(2000,9%,20) = $102,320.24

@IRR(guess,num|range[,...])
Computes the internal rate of return of an investment. String entries are considered zero values.
A rug-cleaning business is being offered for sale for $180,000. The owner says the business should net $25,000, $35,000, $39,000, $40,000 and $55,000 in years 1-5. What is this project's internal rate of return?

	A
1	-180000
2	25000
3	35000
4	39000
5	40000
6	55000

The initial expense is entered as a negative number in cell A1. The range of cash inflows are given in cells A2:A6. To calculate this project's IRR value:

@IRR(B1,A1:A6) = 0.023%

This differs from "IRR(guess,num|range[,...])" on page169. @IRR() counts string entries as zero, but IRR() ignores string entries.

@NPV(rate,num|range[,...])
Returns the Net Present Value of an investment with the interest of rate. Counts string values in range as zero.
An apartment is being offered for sale for $400,000. Expected rental incomes for years 1-5 are $79,000, $85,000, $85,000, $103,000 and $120,000 and the interest rate is expected to stay close to 7%. Is this a worthwhile investment?

	A
1	-400000
2	79000
3	85000
4	85000
5	103000
6	120000

To figure out the net present value of the cash in-flows:
@NPV(7%,A2:A6) = $381,595

To figure out the value of the project:
Project Value = Initial Cost + NPV
= +A1+@NPV(7%,A1:A5)
= -18,404
No, this project is not worthwhile.
This differs from "NPV(rate,pmt1[,pmt2[,...]])" on page170. @NPV() treats string values as zero, but NPV() ignores string values.

@PMT(prin,int,term)
Returns the payment to pay off a loan of prin with interest int over term payments.
What would be the monthly payment on an $40,000 home improvement loan, to be repaid in 5 years at a fixed rate of 9%?

@PMT(40000,9%/12,5*12) = $830.33 per month.

@PV(pmt,rate,per)
Computes the present value of per payments of pmt with a rate of rate.
What is the present value of the retirement annuity which promises to pay $30,000 every year for the next 20 years, given an interest rate of 12%?

@PV(30000,12%,20) = $224,083.31

Returns the interest rate for an investment of pv to achieve a value of fv in per periods.
How much interest would an a bank account need to earn for an investment of $67,000 to grow to $100,000 in 5 years or less?

@RATE(100000,67000,5) = 8.34% or more.

@SLN(cst,slvg,life)

Returns the straight-line depreciation of an asset that cost cst, has a salvage value of slvg, and a life of life.
A company buys a delivery van for $12,000. It has a useful life of 5 years and will be worth $2,000 at the end of that time. How much depreciation can the company write off each year?

@SLN(12000,2000,5) = $2,000

@SYD(cst,slvg,life,per)
Returns the Sum of the Years Digits depreciation for an asset that cost cst, has a salvage value of slvg, a life of life in period per.
A company buys a delivery van for $12,000. It has a useful life of 5 years and will be worth $2,000 at the end of that time. How much depreciation can the company write off in years 1,2 and 4?

year 1: @SYD(12000,2000,5,1) = $3,333
year 2: @SYD(12000,2000,5,2) = $2,667
year 4: @SYD(12000,2000,5,4) = $1,333

@TERM(pmt,rate,fv)
@TERM() computes the number of payments of pmt required to reach fv with a interest rate of rate.
How many $700 monthly payments would be needed to accumulate $250,000 in a bank account earning 4% interest?

@TERM(700,4%/12,250000) = 235.6 monthly payments (taking almost 20 years).