

COMPOUND INTEREST

$$FV = PV \left(1 + \frac{r}{k(100)} \right)^{kn}$$

FV = future value PV = present value

r = interest rate n = the number of years

k = the number of compounding periods per year

Example 1

Pauline invests \$6000 in a bank offering 4% interest compounded annually.

- a) Calculate the amount of money she has after 8 years.

Pauline then withdraws all her money and places it in another bank that offers 4% interest per annum compounded monthly.

- b) Calculate the amount of money she has after 5 years.

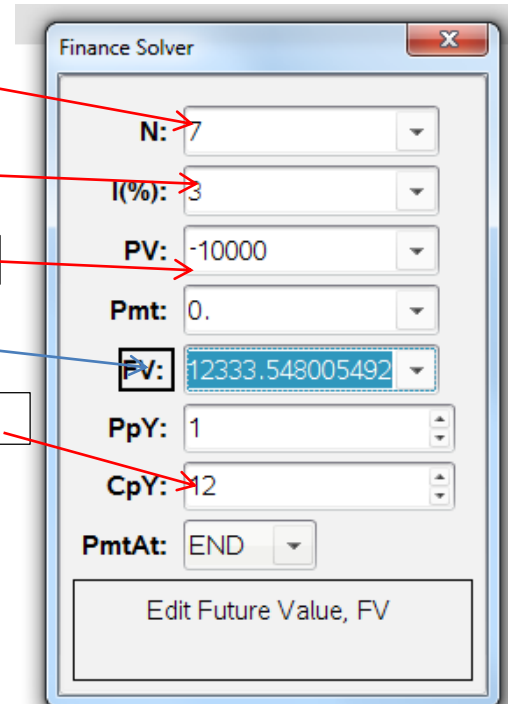
7 years

R=3% p.a.

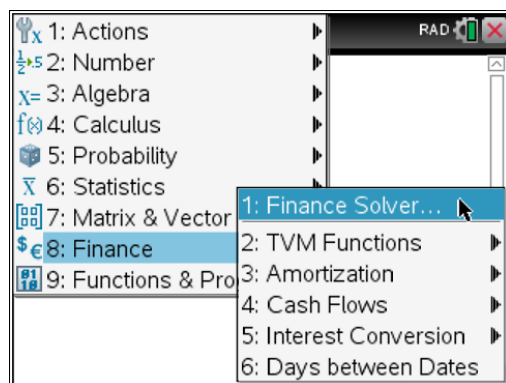
PV=10000

Enter to get FV

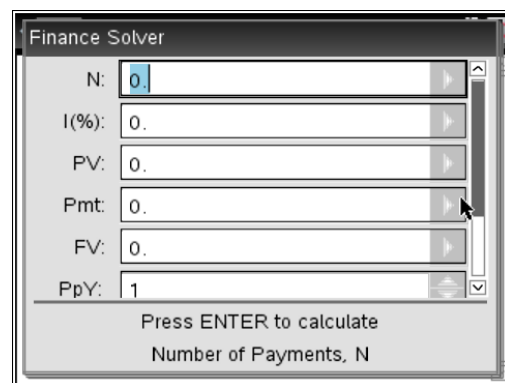
Interest compounded monthly



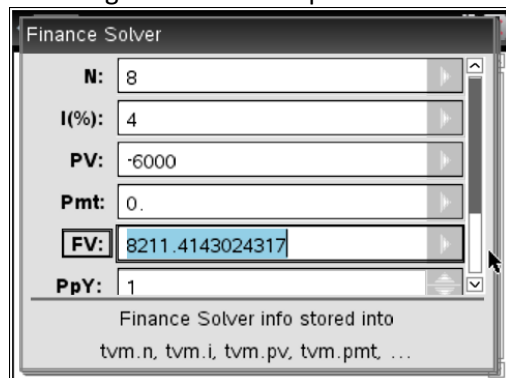
Menu, Finance, Finance Solver



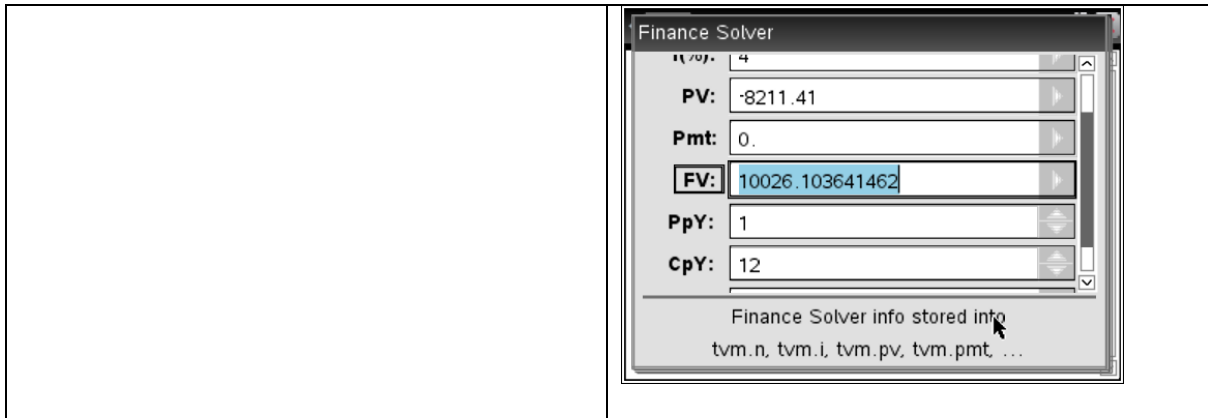
This screen appears:



- a) Enter 8 for N, 4 for I, -6000 for PV then go to FV cell and press Enter



- b) Enter 5 for N, 4 for I, -8211.41 for FV, scroll down to CpY and enter 12, then go to FV and press Enter:



Example 2

Tom invested \$4000 in a bank offering interest at a rate of 5% p.a. compounded quarterly.

- Calculate the amount of money that Tom has in a bank after 6 years.
- How much interest did he earned over the 6 years?
- How long does it take for his money to double?

<p>a)</p> <p>Finance Solver</p> <p>PV: -4000</p> <p>Pmt: 0.</p> <p>FV: 5389.4042016574</p> <p>PpY: 1</p> <p>CpY: 4</p> <p>Finance Solver info stored into tvm.n, tvm.i, tvm.pv, tvm.pmt, ...</p>	<p>b)</p> <table border="1"> <tr> <td>tvm.fv</td> <td>5389.4</td> </tr> <tr> <td>5389.4042016574 - 4000</td> <td>1389.4</td> </tr> <tr> <td>1389.4042016574</td> <td></td> </tr> </table>	tvm.fv	5389.4	5389.4042016574 - 4000	1389.4	1389.4042016574																	
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5389.4042016574 - 4000	1389.4																						
1389.4042016574																							
<p>c)</p>	<p>So it would take 14 years for his money to double.</p> <table border="1"> <tr> <td>tvm.cpy</td> <td>5389.4</td> </tr> <tr> <td>tvm.fv</td> <td>5389.4</td> </tr> <tr> <td>tvm.i</td> <td>4 - 4000</td> <td>1389.4</td> </tr> <tr> <td>tvm.n</td> <td>4</td> <td>1389.4</td> </tr> <tr> <td>tvm.pmt</td> <td>4</td> <td>1389.4</td> </tr> <tr> <td>tvm.pmtat</td> <td></td> <td>1389.4</td> </tr> <tr> <td>tvm.ppy</td> <td></td> <td>13.9494</td> </tr> <tr> <td>tvm.pv</td> <td></td> <td>13.9494</td> </tr> </table>	tvm.cpy	5389.4	tvm.fv	5389.4	tvm.i	4 - 4000	1389.4	tvm.n	4	1389.4	tvm.pmt	4	1389.4	tvm.pmtat		1389.4	tvm.ppy		13.9494	tvm.pv		13.9494
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tvm.pv		13.9494																					

Finance Solver	
N:	13.949407621007
I(%):	5
PV:	-4000
Pmt:	0.
FV:	8000
PpY:	1
CpY:	4
PmtAt:	END
Edit Number of Payments, N	

PV needs to be entered with a negative sign.