

Using a Spreadsheet to Represent the Value of a Deposit

2.4



You just invested \$5000 in a term deposit that pays 8%/a, compounded annually. You could graph the annual balance by hand or use a graphing calculator. However, a spreadsheet can create a table of the annual balance and the graph.

Create a Table of the Annual Balance

You may find that the spreadsheet software that you are using may have different commands or techniques for achieving the same results.

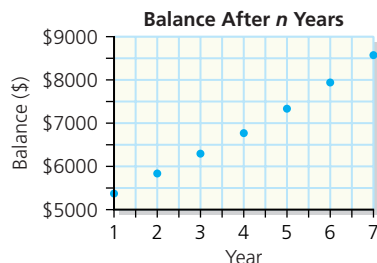
1. Create a spreadsheet with four columns, labelled Period, Balance, Interest at 8%/a, and Year-end Balance in cells A1, B1, C1, and D1, respectively.
2. In cells A2 and B2, enter 1 and 5000, respectively. In cell C2, enter the expression for interest, $=B2*.08$, and press **[ENTER]** to calculate the value.
3. The year-end balance is the sum of the balance at the beginning of the year and the interest earned. In cell D2, enter the expression $=B2+C2$ and press **[ENTER]**.
4. In cell A3, enter the expression $=A2+1$ and press **[ENTER]**. The balance at the end of each year is the balance at the beginning of the next year. In cell B3, enter the expression $=D2$ and press **[ENTER]**. In cell C3, enter the expression for interest, $=B3*.08$ and press **[ENTER]**. In cell D3, enter the expression $=B3+C3$ and press **[ENTER]**.
5. Select cells A3 across to D3 and down to D8. Use the Fill Down command to complete the table.
6. You can display financial data in different ways. Select cells B2 to D8 and click the \$ button or icon. Each number will appear with a dollar sign, a comma, and will be rounded to two decimal places.

	A	B	C	D
1	Period	Balance	Interest at 8%/a	Year-end Balance
2	1	\$5,000.00	\$400.00	\$5,400.00
3	2	\$5,400.00	\$432.00	\$5,832.00
4	3	\$5,832.00	\$466.56	\$6,298.56
5	4	\$6,298.56	\$503.88	\$6,802.44
6	5	\$6,802.44	\$544.20	\$7,346.64
7	6	\$7,346.64	\$587.73	\$7,934.37
8	7	\$7,934.37	\$634.75	\$8,569.12

7. To find the sum of the cells in a row or column, use the **SUM** function or the Σ button. To find the total interest earned over seven years, enter the expression `=SUM(C2:C8)` in cell C9.

Graph the Annual Balance

Now create a graph. Select the data in the table you wish to graph and choose the **Chart** command. Select **XY – Scatter**. Check your spreadsheet software menus to find the proper commands. You can also add labels, axes, scales, and titles to the graph, similar to the ones shown.



Practice 2.4

Use a spreadsheet to create a table and a graph that display the value of each investment over ten years.

- \$2000 at 4%/a, compounded yearly
- \$8000 at 8%/a, compounded quarterly
- In the spreadsheet, calculate the total interest earned over the first eight years for the investments in (a) and (b).
- \$30 000 at 6%/a, compounded monthly
- \$5000 at 6%/a, compounded semiannually