A student requires $5000 per year to fund a 4 year course. How much should they invest today in an account offering 8% pa compounded annually to enable them to draw $5000 at the start each of the next four years?

Start a new spreadsheet. 4 × $5000 = $20,000 seems a reasonable estimate for the investment. Enter **20000** into cell A1.

One year later, we must increase the investment by a factor of 1.08 (to add 8% interest) and then withdraw the $5000 cash payment.

Tap into cell B1 and enter **1.08**.

Into cell B2 enter **5000**.

Next tap into cell A2 and enter the formula **=A1×B$1-B$2.**

Copy the formula in cell A2 to A5 (four payments of $5000). Adjust the cell format to 2dp and the column width as shown.

Cell A5 shows that after 4 payments of $5000, $4679.22 remains in the account. Our initial estimate of $20000 to invest was too large, because of the interest added during the life of the investment.

Use trial and adjustment on the initial deposit until the value in cell A5 becomes zero.

Save your spreadsheet if required.

This trial and improvement technique is OK, but let's look at a way to go straight to the required investment by working backwards.

Tap into cell A7 and enter **0**, the required final balance.

To reverse ×1.06 then -7000, we must +7000 then ÷1.06.

Tap into cell A8 and enter the formula **=(A7+B$2)/B$1**.

Copy the formula in cell A8 to cell A11.

Now we can check our solution to the original problem.

$16560.63 is required.

Note: There is no such thing as a 'standard annuity', so always carefully check the frequency of payments, whether payments are made at the start or end of the compounding period and so on, modifying your spreadsheet to reflect these differences.