Concept – Compound Interest

If you need to borrow money the lender will charge you interest. It is far more common that this interest will be compounded. This means you pay interest on the amount remaining, not always the principle.

$$A = P\left(1 + \frac{r}{100}\right)^t$$

You can calculate just the amount of interest using the equation below.

$$I = A - P$$

How to - Work with compound interest

You can work out the amount of interest charged, the principle, the interest rate per annum or the time using the equation above by following these steps.

1. Identify what you are being asked to find.
2. Write down the values you know.
3. Substitute known values into the relevant equation(s)
4. Use Algebra or the solve function on CAS to solve the equation.
5. Answer the question.

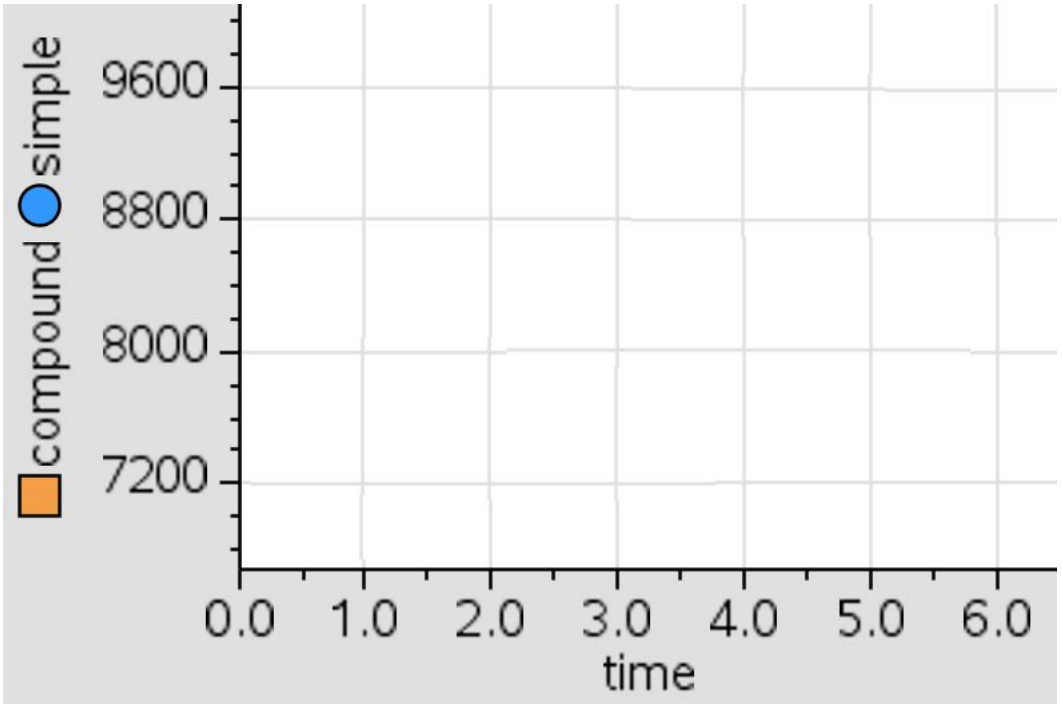
Eg: Mark invests $6500 with a building society who pays him 7.15% p.a. What will be the total amount of the investment in 6 years if it is compounded annually, and what interest will Mark earn in this time?

How to - Graph simple and compound interest with CAS.

Using graphs of the total amount of an investment can help to visualise why simple or compound may be a better choice. To do this on CAS

1. Open a  _____ page.
2. Label Column A _____, Column B _____ and Column C _____
3. In the formula bar (grey) under simple, type the formula _____ with all appropriate values substituted in.
4. In the formula bar (grey) under compound, type the formula _____ with all appropriate values substituted in.
5. Open a  _____ page.
6. Add time to the x axis then add simple to the y axis.
7. Press _____ →_____→_____ and add compound.

Sketch a copy of the graph you produce of Mark's two investments on the axis provided below.



Worked Example

Find an example of a simple interest loan and show all steps required to calculate the total amount of interest owed and the total amount of the loan to be repaid.