 Modelling home loans

Consider a home loan of $450000 to be repaid over 25 years with an interest rate of 6% p.a. compounded monthly. This is 0.5% per month.

Define as the balance owing after n periods and m as the monthly repayment.

**Example:**

1. **Calculate the repayment:**

or

To calculate the size of the repayment, recognise that the balance owing is $0 after 25 years or 300 months (n)

The brackets form a geometric series with a first term of 1 and a common ratio of 1.005.

1. **Calculate the total amount repaid:**
2. **Calculate the total interest paid:**