

Sophie and her sister Nina are thinking of buying a flat together.

Before they go flat hunting, Sophie and Nina's parents help them to prepare a budget. Together they decide to estimate the cost of buying a flat.

If the purchase price of the flat is \$100 000, Sophie would also have to pay stamp duty and legal fees which amount to about 10% of the price.

$$10\% \times \$100\,000 = \$10\,000$$

So, the total amount the sisters need would be about \$110 000. They will need to pay a deposit of about 10% of the purchase price (the more the better) and between them they have saved \$10 000 for the deposit.

The loan required for the flat would be \$100 000 (\$90 000 for the balance of the purchase price and \$10 000 for the stamp duty and legal fees).

Sophie and Nina need to know what their repayments would be each month, so they know whether they can afford to buy the flat. They work out what their repayments would be each month if the loan period was 25 years and the interest rate was 8%.

- Using the formula from Worksheet E2 we can calculate that the sisters would need to pay \$771.82 each month. How much is this each per week? -----

Though each payment is equal, the division between principal and interest varies with each payment. On her computer, Sophie decides to set up a spreadsheet to understand her loan better. Set up her spreadsheet on your own computer entering Sophie's loan details and the formulas given below.

Payment period	Principal	Interest to pay	Principal plus interest	Principal plus interest minus repayment
1 (first month)	How much of the principal is still left to pay.	8% pa divided by 12 gives the monthly interest rate. This is multiplied by the principal to find the monthly amount	This is the total now owed.	This is the total still owed after this payment.
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The first few lines of the spreadsheet will look like this:

Payment period	Principal	Interest to pay	Principal plus interest	Principal plus interest minus repayment
1	\$100 000.00	\$666.67	\$100 666.67	\$99 894.85
2	\$99 894.85	\$665.97	\$100 560.82	\$99 789.00
3	\$99 789.00	\$665.26	\$100 454.26	\$99 682.44
4	\$99 682.44	\$664.55	\$100 346.99	\$99 575.17
5	\$99 575.17	\$663.83	\$100 239.00	\$99 247.33

2. USE the complete table from your spreadsheet of Sophie's loan to answer these questions:

What was the interest paid for the:

- a) 1st time period?
- b) 14th time period?
- c) 30th time period?
- d) How much of the principal has been paid after 5 years?

3. Many websites have loan calculators on them. To look at some of these SEARCH for 'loan calculators'. WRITE the names and URLs of 3 sites with loan calculators.

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4. USE these calculators to find out:

- a) How much would Sophie and Nina's monthly repayment be if the loan period was 20 years?
- b) How much would the monthly repayments be over 25 years if the interest rate rose to 11%?
- c) How much would the girls need to pay each month for a loan of \$80 000 over 25 years at 8%?

