

CP543

Reducible Interest

A student wishes to purchase a car priced at \$4000. The student has a part-time job and can afford to repay \$350 every month. A bank offers the student a loan of \$4000 with an interest rate of 15% pa compounded monthly. How many complete months will it take the student to repay the loan and how much interest will be paid in total?

Start a new spreadsheet and enter **4000** in cell A1 for the initial loan.

In cell C1 enter **0.0125** for interest rate (15% ÷ 12 = 1.25% per month).

In cell B1 enter **=A1×\$C\$1** to calculate the monthly interest.

In cell C2 enter **350** for the monthly repayment.

In cell A2 enter **=A1+B1-\$C\$2** to calculate amount owing at start of next month.

Copy cell B1 down to cell B2.

Select cells A2 and B2, and copy these cells down several rows.

You might choose to use Fill Range on individual columns if row by row copying becomes tedious.

Continue down until the balance in column A reduces to 0 or less.

Tap on the column A heading and drag across into the column B heading to select both columns.

Tap **Edit, Format, Number Format, Fix2, OK.**

	A	B	C
1	4000		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

A2

	A	B	C
1	4000	50	0.0125
2	3800		250
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

=A1+B1-\$C\$2

A2 3800

	A	B	C
1	4000	50	0.0125
2	3800	47.5	250
3	3597.5	44.9688	
4	3392.47	42.4059	
5	3184.87	39.8109	
6	2974.69	37.1836	
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

=A5+B5-\$C\$2

A6:B6

	A	B	C
1	4000.00	50.00	0.0125
2	3700.00	46.25	350
3	3396.25	42.45	
4	3088.70	38.61	
5	2777.31	34.72	
6	2462.03	30.78	
7	2142.80	26.79	
8	1819.59	22.74	
9	1492.33	18.65	
10	1160.99	14.51	
11	825.50	10.32	
12	485.82	6.07	
13	141.89	1.77	
14	-206.33	-2.58	
15			
16			

4000

A1:B14

Because the balance showing in cell A14 is negative, the student has paid \$206.33 too much on their final (13th) repayment.

So their final repayment only needs to be \$350 - \$206.33 = \$143.67.

The total interest can be found by summing the monthly interest figures from B1 to B18.

Tap into cell B15.

Start a formula with =, then **Calc, List-Calculation, sum**.

Complete the formula by selecting cells **B1 to B13** and tapping EXE.

This spreadsheet can easily be adapted for various

- Loan Amounts (cell A1)
- Interest Rates (cell C1)
- Repayment amounts (cell C2)

Shown below is the scenario for a \$3000 loan at 12% pa compounded monthly with repayments of \$400.

The spreadsheet can also be saved for future use.

Tap File, Save, type in a filename (no more than 8 characters) and tap Save.

	A	B	C
1	4000.00	50.00	0.0125
2	3700.00	46.25	350
3	3396.25	42.45	
4	3088.70	38.61	
5	2777.31	34.72	
6	2462.03	30.78	
7	2142.80	26.79	
8	1819.59	22.74	
9	1492.33	18.65	
10	1160.99	14.51	
11	825.50	10.32	
12	485.82	6.07	
13	141.89	1.77	
14	-206.33	-2.58	
15	143.67		
16			

=350+A14

A15 143.6652193

	A	B	C
1	4000.00	50.00	0.0125
2	3700.00	46.25	350
3	3396.25	42.45	
4	3088.70	38.61	
5	2777.31	34.72	
6	2462.03	30.78	
7	2142.80	26.79	
8	1819.59	22.74	
9	1492.33	18.65	
10	1160.99	14.51	
11	825.50	10.32	
12	485.82	6.07	
13	141.89	1.77	
14	-206.33	-2.58	
15	143.67	343.665	
16			

=sum(B1:B13)

B15 343.6652193

	A	B	C
1	3000.00	30.00	0.01
2	2630.00	26.30	400
3	2256.30	22.56	
4	1878.86	18.79	
5	1497.65	14.98	
6	1112.63	11.13	
7	723.75	7.24	
8	330.99	3.31	
9	-65.70	-0.66	
10	-466.36	-4.66	
11	-871.02	-8.71	
12	-1279....	-12.80	
13	-1692....	-16.93	
14	-2109....	-21.09	
15			
16			

C3

	A	B	C
1			
2			
3			
4			
5			
6	1112.63	11.13	
7	723.75	7.24	
8	330.99	3.31	
9	-65.70	-0.66	
10	-466.36	-4.66	
11	-871.02	-8.71	
12	-1279....	-12.80	
13	-1692....	-16.93	
14	-2109....	-21.09	
15			
16			

C3