

**Question 10****(14 marks)**

Wendy moved into an apartment and organised a loan of \$16 000 to purchase new furniture. To pay off the loan Wendy makes repayments of \$600 at the end of each month. The spreadsheet below shows the progress of her loan.

Month	Opening balance	Interest	Repayment	Closing balance
1	16 000.00	98.67	600.00	15 498.67
2	15 498.67	95.58	600.00	14 994.24
3	14 994.24	92.46	600.00	14 486.71
4				

- (a) Write a calculation to show that the yearly interest rate is approximately 7.4%. (2 marks)
- (b) Complete the fourth row of the spreadsheet. (3 marks)
- (c) Write a recursive rule to determine the closing balance of the loan at the end of each month. (2 marks)
- (d) Determine how many months it will take Wendy to pay off the loan. (1 mark)

(e) Calculate how much interest is paid over the duration of the loan.

(3 marks)

On reflection, Wendy realised she could have repaid \$800 each month.

- (f) Determine the maximum amount Wendy would have been able to borrow, if all other details of the loan and repayment time remained the same. (3 marks)