

**Question 14****(13 marks)**

Andrew takes out a \$14 999 loan to purchase his first car after paying a \$1200 deposit. The car dealer offered the loan at an introductory interest rate of 1.80% p.a. for the first year and then the rate becomes 3.24% p.a. for the remaining time of the loan. Interest is added monthly and Andrew has calculated he can afford to make monthly repayments of \$420.

- (a) (i) Express the loan repayment process for the first year as a recursive formula. (2 marks)
- (ii) How much does Andrew still owe after one year? (1 mark)
- (b) How much does Andrew owe after two years? (3 marks)
- (c) How long does it take Andrew to repay the loan? (2 marks)
- (d) Determine the amount of the final repayment. (2 marks)

(e) Calculate the total cost of the car.

(3 marks)