1. **GIC** Jean Paul is saving for a car. He puts $4500 in a Guaranteed Investment Certificate paying 5.25% per annum, compounded quarterly. How much money will he have available to buy a car 3 years from now?

2. **Long-term savings** Melanie is deciding which of two long-term savings plans to choose for investing $9000: 6.2% per annum, compounded semi-annually, or 5.75% per annum, compounded quarterly. If she plans to leave the money in the plan for 8 years, which is the better option? Justify your answer.

3. **University** Faris needs $5000 for university in 3 years. His parents plan to invest some money in an account paying interest at a rate of 7.1% per annum, compounded quarterly. How much should they invest now to have $5000 in 3 years?

4. **Loan** Sophia is borrowing some money to pay the set-up costs for her web site. She predicts she can afford to pay $17 000 for the loan in 2 years. The plan she is arranging offers a loan at 9.8% per annum, compounded monthly. At this rate, how much can she borrow?

5. **Retirement** Sam’s aunt is investing $1000 for retirement every 6 months, starting 6 months from now. The account pays 7% per annum interest, compounded semi-annually. How much will she have saved in 10 years?

6. **Lottery** Brooke won $100 000 in a lottery. The prize will be paid in yearly installments of $10 000 each year for 10 years. What is the present value of her winnings, if current interest rates are 6.4% per annum, compounded annually?
7. **Artist fund** A company is investing money to start a fund to send young artists to special classes. They want to invest an amount that would continue for 10 years to give $3000 a month for the art students to share, starting in a month. If the money is invested at 8.2% per annum, compounded monthly, how much must they invest?

8. **House** Ina is negotiating a mortgage of $145 000 for her new house.
   a) What are Ina's monthly payments for a mortgage at 5% per annum, compounded semi-annually, amortized over
      i) 25 years?
      ii) 20 years?
      iii) 15 years?
   b) How much would Ina pay for the mortgage amortized over 15 years if it were kept for 15 years?

**Achievement Check**

9. Instead of paying $4000 at the end of 5 years and $3000 at the end of 10 years, Erica agrees to make equal monthly payments for 10 years. Find the monthly payment if the interest charged is 8% per annum, compounded monthly. Explain your method.