Name: _____   Date: _____

7.5 Present Value of an Annuity

1. Ramona is putting some of her summer job earnings into an annuity from which she plans to withdraw $800 per month for 10 months while she is at university next year. Suppose that interest is earned on the annuity at a rate of 6%, compounded monthly.
   a) Draw a time line to represent the annuity.
   b) How much does Ramona need to deposit to finance this annuity?
   c) How much interest will the annuity earn during the 10 months?

2. Marian's uncle wants to deposit an amount into an annuity that will allow Marian to receive $4000 every 3 months for 4 years, with the first payment occurring in 3 months. For the desired payments to be possible, what amount must Marian's uncle invest in an annuity that will pay 8%, compounded quarterly?

3. Alexis is offered 0% financing on a new vehicle over 4 years. She is asked to make payments of $920 per month over 48 months to pay for the vehicle. Alexis plans to make the first payment and, at the same time, to invest a lump sum into an annuity that will cover the remaining payments.
   a) How much does Alexis need to deposit into an annuity that pays 6% per year, compounded monthly, to make the remaining payments?
   b) How much does she save by doing this?

4. Jaycee inherited $250 000. She plans to draw a monthly amount from an annuity she will establish using the inherited money. The annuity earns interest at an annual rate of 6.4%, compounded monthly. How much can Jaycee draw out of the annuity each month if she plans to have it last for the next 30 years?

5. Sally has $500 000 to invest when she decides to retire. She places this amount in an annuity that will give her quarterly payments for the next 30 years. The account earns 5% interest, compounded quarterly. How much will the annuity pay Sally each quarter?

6. Your high school receives a lump sum of $10 000 to fund an annual scholarship over the next 10 years. The school plans to award the first scholarship at the end of this year. It takes the lump sum and places it in an account that pays an annual interest rate of 4.8%, compounded yearly. How much can the school pay the scholarship winners each year?

7. A lottery to support a local children's camp offers a $100 000 prize, with the winner to receive $5000 per month for the next 20 months, starting one month after the draw. How much does the lottery organization need to invest on the day of the draw if the annuity set up for the prize pays 6% annual interest, compounded monthly?

8. Jerry received an insurance settlement of $120 000. He invested the money at an annual interest rate of 6.2%, compounded monthly, to provide him with a payment per month for the next 5 years, starting next month. How much will Jerry be able to draw per month?

9. After selling a successful small business, Adrian wants to invest some of the proceeds of the sale to be able to collect $4000 per month over the next 20 years, starting next month. If the annuity he invests in pays an annual interest rate of 4% per year, compounded monthly, what amount does he need to deposit?