U7D8 **MAP4CI – Annuities and Budgeting REVIEW**

1) You want to save money to take a trip at the end of the year and need to put a monthly budget together to determine if you will have enough saved. Design a **MONTHLY** budget for yourself given the following information. State the size of your budget deficit or a budget surplus each month. How much will you have saved in one year?

- annual gross income $44 000, monthly deductions $1100
- investment income of $200 / month
- rent of $225 weekly
- food - $400 monthly
- Netflix, internet, and phone - $150 monthly
- utilities (heat, hydro, and water) - $210/month
- car loan - - $329/month
- clothes - $1500 annually
- car insurance - $90 bi-weekly
- entertainment and sports - $240 monthly
- miscellaneous - $70 weekly

MONTHLY BUDGET

Income		
	Total Monthly Income:	
Expenses		
	Fixed Expenses	
	Total Monthly Fixed Expenses:	
	Variable Expenses	
	Total Monthly Variable Expenses:	
	Total Monthly Expenses:	
	Monthly Budget Surplus or Deficit:	

Annual **Savings / Loss=** $_____

Formulas: I = P r t A = P + I $A = P(1+i)^n$ $PV = A(1+i)^{-n}$ $A = \frac{R[(1+i)^n-1]}{i}$ $P = \frac{R[1-(1+i)^{-n}]}{i}$

2) You are considering purchasing a new car at a list price of $32,000. Answer the following questions related to the purchase of this car. (No interest formulas are required for this question)

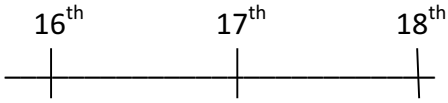
a) Calculate the cost, including tax, of purchasing this new car (recall HST = 13%).

b) Suppose you have $12 000 to use as a down payment on the car you are financing. Calculate the amount of money you will have to finance based on the total after tax cost less your down payment.

c) If you make monthly payments of $441 for 5 years to pay off the car, how much will you have paid in total? (Don't forget to include the $12 000 down payment.)

d) How much have you paid in interest?

3) On Brianna's 16th birthday, she began investing $850 **per year** in an investment that pays 3.9% interest per year, compounded annually.
Determine the value of her investment on her 18th birthday using a timeline.



4) Lukas deposits $55 every month for 40 years into an account that pays 12% per annum, compounded monthly, what will the investment be worth at the time of his last deposit?
Use the Annuity formula, $A = \frac{R[(1+i)^n-1]}{i}$

5) An RRSP is an investment offered by many financial institutions. In a particular RRSP, which is compounded quarterly, the amount in dollars (A) in the RRSP after n months is given by the equation $A = 600(1.006)^n$

a) What is the principal of the investment?

b) What is the amount in the RRSP after 1 year?

c) What is the amount in the RRSP after 3.5 years?

d) How much **interest** will the RRSP have earned in 3.5 years?

e) What is the **annual** interest rate (compounded quarterly) of this RRSP?

6) Justina borrows $12 500 to buy a used car. She borrows the money at 2.4%/a compounded monthly. If she pays off the car in monthly payments over 4 years how much will each payment be?
Use the Present Value Annuity formula to solve for the "regular payment" $R = \frac{Pi}{[1-(1+i)^{-n}]}$