Math 3201

9.5 Variables Involved in Financing

Part 1: Appreciation vs. Depreciation

Appreciation and depreciation both deal with asset value over time. **Appreciation** means that an asset increases in value, while **depreciation** means it decreases in value.

Assets such as real estate and bonds usually gain value over time while other assets such as vehicles may decrease in value. There are situations where assets can appreciate or depreciate.

Example 1:

Houses usually appreciate over time, but there are economic circumstances that may cause them to depreciate. What could some of these factors be?

- economic downturn
- socio-economic factors of neighbourhood deteriorate.
- population decline
- high crime rate
- job losses
- disaster

Example 2:

Vehicles can appreciate or depreciate in value over time. Explain.

New cars depreciate in value until they become antique (restored). Law of supply and demand.

Part 2: Renting, Leasing and Buying
When deciding to rent, lease or buy, completing a **cost-and-benefit analysis** is essential in determining which option is best. To make an informed decision, you should consider:

- affordable monthly payments
- interest rates
- amount of down-payment
- total end cost including interest
- personal benefits such as convenience and flexibility
- appreciation and depreciation
- amount of disposable income for example money left when bills are all paid
- the importance of building equity for example the portion of the house that you own once the mortgage is paid off
- initial fees and possible penalties for example repaying a mortgage early, lawyers fees, property tax, etc.

Renting vs. Leasing
Renting and **Leasing** are terms used with respect to real estate. Both are used in context to using a land, building, etc. in return for a payment. The two differ in terms of the time period, payment and type of contract. Renting is generally shorter term, the terms of the agreement are easier to change, and the agreement can be cancelled at any time with no to little penalty. Leasing applies more to long term agreements and involves a more detailed and rigid contract. It is more difficult to break a lease before the end date since the agreement is often in writing and involves penalties for early termination.

Example 3:
Sarah is going to university in the fall and her parents are trying to decide whether to buy a house or rent an apartment for the 5 years she will be there. The house they are considering buying costs $200,000 and requires a down payment of $10,000. The bank will provide a 20year mortgage, for the remainder of the cost, at 3% with payments every month. The house they are considering renting is $1400 per month and requires an initial damage deposit of $700.

(A) What is the monthly payment for the mortgage? Hint: Using TI83 Plus to calculate PMT

N= 240
I%= 3
PV= 190000
PMT= 0
FV= 0
P/Y= 12
C/Y= 12
PMT: $\boxed{\text{END}}$ BEGIN

$n = 20 \times 12 = 240$

$PV = \$200\,000 - 10\,000 = \$190\,000$

PMT: -1053.74

Mortgage payment: $1053.74

(B) What is the total amount spent in the first five years if you purchase the house?

$\$1053.74 \times 12 \times 5 = \$63224.40$

$$\begin{array}{r} \$63224.40 \\ +\ 10000.00 \\ \hline \$73224.40 \end{array}$$

(C) What is the monthly payment for renting?

$1400

(D) What is the total cost for renting for 5 years?

$\$1400 \times 12 \times 5 = \$84000$

$$\begin{array}{r} \$84000 \\ +\ 700 \\ \hline \$84700 \end{array}$$

(E) If we only consider monthly costs, which option would be best?

Buying.

(F) What other factors should a person consider when making this decision?

- Short term
- down payment
- responsibity of home ownership.

Factors that should be considered when deciding whether to buy, rent or lease.

Buy	Rent	Lease
• build equity • long term investment • renovate the house • maintenance costs	• can be short term • can be contract free	• long term investment • includes a contract • must pay in full if the person decides to move before the end of the contract
	• do not own • cannot change the property • rent can change after 12 months • owner's rules • no maintenance costs	