## 2-7 Evaluation- Ordinary Simple Annuities: Mortgage Assignment

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COMMUNICATION	/11	THINKING	/26	-
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THINKING

26 MARKS

#### Instructions:

You are to research a house in either your area, or an area that you would like to live (ex. another country, city, province etc.). When you have the advertisement of your chosen house, copy and paste the advertisement, along with the URL link for your dream home in a word document to submit. The advertisement should include the address, price and the number of bedrooms and bathrooms.

For houses in Canada, you may find it useful to use realtor.ca or commfree.com.

### Marking Scheme (4 marks)

 4 marks for attaching the house advertisement including the address, price and the number of bedrooms and bathrooms

A <u>down payment</u> is an initial amount that you pay when you buy something on credit. It is custom in Canada to put a minimum of 5% "down" on a house, in order to protect yourself and the banks against market fluctuations, in the case of a forced sale.

The <u>mortgage amount</u> is the sale price of the house minus the down payment. This is the amount being borrowed.

<u>Payments</u> are commonly made monthly, bi-weekly or weekly. Since payments are made on the decreasing mortgage amount, a mortgage is a type of <u>simple annuity</u>.

In order to be approved for a mortgage, two main things have to fall into place: good credit and enough income to cover the debt.

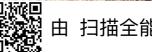
The amount of <u>income required</u> to be approved for a mortgage is based on <u>GDSR</u>, gross debt service ratio. This means that an individual's debt payments (mortgage) can only account for 35% of their income. The ratio is calculated using the formula <u>principal+interest+taxes+helit</u>. For the scope of this assignment, we will use 0.5% of the house amount for the cost of the property tax and \$100 per month for heat.

Complete the following questions and submit these papers along with the attached advertisement.

## Marking Scheme (total of 22 marks)

- 1 mark for listing the price of the house
- 1 mark for calculating the down payment (2 marks total)
- 1 mark for calculating the mortgage amount after the down payment (2 marks total)
- 3 marks for calculating the mortgage payment manually (12 marks total)
- 1 mark for calculating the property tax on the house
- 2 marks for calculating the income needed to be approved for the mortgage (4 marks total)

Page 1 of 4



Option 1:

What is the price of the house?

J462,000

If you wanted to put a 5% down payment on the house, what amount would this be?

After the 5% down payment, what is the mortgage amount?

Calculate the payment, "R," if the mortgage is paid monthly at an annual interest rate of 4.44% for 25 years.

Calculate the payment, "R," if the mortgage is paid monthly at an annual interest rate of 4.44% for 20 years.

What is the cost of the property tax, based on 0.5% of the price of the house?

What would your income need to be in order to afford this house (given that you have no other debts)?

\$462000 + \$ 2510 = \$464.3/0.

25 years -3/2 462000+240210+2310+100x15x12 X=\$297625.571

20 years 35% = 462000+273256.8+2400+100x26x12 X= 2235305.143

Page 2 of 4

Option 2

What is the price of the house (same as above)?

5462060

If you wanted to put a 20% down payment on the house, what amount would this be?

After the 20% down payment, what is the mortgage amount?

Calculate the payment, "R," if the mortgage is paid monthly at an annual interest rate of 4.44% for 25 years.

simple Annuities

Calculate the payment, "R," if the mortgage is paid monthly at an annual interest rate of 4.44% for 20 years.

Simple. Annuities

What is the cost of the property tax, based on 0.5% of the price of the house?

What would your income need to be in order to afford this house (given that you have no other debts)?

25 years 35% 462000+202281+2310+100×25×2 20 years 35%= 462000+23012+2310×100×25×2 20 years 35%= × ×=\$2076920.

Page 3 of 4

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#### COMMUNICATION

11 MARKS

Complete the following questions:

# Marking Scheme (total 11 marks)

- 2 marks for valid and thoughtful reasons why you chose this house
- 1 mark for each calculation on the differences (total 3 marks)
- 2 marks for each explanation of your opinion on the difference (total 6 marks)

Why did you choose this house? The house the plus the garden has a total area of 64 square meters It has a garage and a toilet and is air-conditioned. Three hadrons and a new kitcher Lockes and Toronto's central business district are five minutes away, have benetiful environment For the 5% down payment opinion, what is the difference in the payment amount between paying your mortgage off in 20 years and 25 years? What is your opinion on this difference? (Hint: Compare Option 1 at 20 years and Option 1 at 25 years) 1158.677800.7 The mortgage off 20 years is more than the mortgage off 25 years of one month mortgage. The total of mortgage 25 years: 800.7725 x12=240240 1133.57 x20 x1=28288 200175 < 22771.4 The total mortgage payment in 25 years is less than the monthly mortgage payment in 20 years. So it is recommended to choose 25 years. For the 20% down payment opinion, what is the difference in the payment amount between paying your

mortgage off in 20 years and 25 years? What is your opinion on this difference? (Hint: Compare Option 2 at 20 years and Option 2 at 25 years) 958.807674.27 The mortgage off in zo years is more than the mortgage of in 25 year of monthly. 958.30 x 20x12=230112 674.27x25x12=20227 22011272023 The total mortgage payment in 25 years is less than the mortgage payment in To years and the monthly mortgage payment in 25 years is less than the monthly mortgage payment in zo years. So recommended to choose 25 years

What is the difference in the payment based on whether you put 5% down or 20% down? What is your opinion on this difference?

(Hint: Compare Option 1 at 5% down payment and Option 2 at 10% down payment) monthly mortgage payment in 25 years. 800.70 monthly mortgage payment in 20 years 1138.57 958.80 total mort gage payment in 25 years. 240210 20228 total mortgage payment in 20 your 273256.8 2301/2

total expand 2% 数 years 230112. + 92406 = 322512.
Page 4 of 4
20% 25 years 20128 1. + 92400. = 29468] total expand 26340.
5%25 years 240210 + 455 700 = .240643 9. 5% 20 years 2732568 + 23.100 = 2963568. It can be concluded from the above information that the monthly mortgage payment and total mortgage payment with a down payment of 5% are less that the monthly mortgage payment and total mortgage payment with a down payment of 20%, so it can be concluded that the down payment of 5% should be chosen

https://www.realestate.com.au/property-house-nsw-toronto-130262166

