**MATH 1010 Home-Buying Project**

**Due December 4, 2017 at the Beginning of Class**

**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**The following project is divided into two parts.   
  
On Part 1 you can check answers with other class members.   
 ALL SET-UPS AND WORK MUST BE SHOWN.**

**NO CREDIT WILL BE GIVEN JUST FOR ANSWERS EVEN IF THEY ARE CORRECT.**

**THE PURPOSE OF CHECKING WITH OTHERS IS TO AVOID ROUNDING ERRORS.**

**ON PART 2, EVERY INDIVIDUAL MUST SUBMIT A TYPED RESPONSE.**

**Part 1 has to be done with formulas shown. Please write legibly.**

**Print a second copy and refill neatly if need be.   
  
Part 2 is summarized on page 2 and then Part 1 follows.**

**(Below is for teacher use only)**

**Points Part 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Points Part 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Total Points \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 2: (20 points)**

***Each student must do this part individually and submit.***

**After searching the web, books or magazine, write a short article using good grammar.**

**The article should be at least one typed page and not more than three.**

**Topics must include a referenced source and may come from:**

1. **How to get the best home loan.**
2. **What are the trends of interest rates?**
3. **History of home loan rates.**
4. **Is buying a home always a good investment?**
5. **Anything related to these topics. Submit topic proposal via email by NOVEMBER 13. You must receive written approval from me. Email me directly (not through canvas) to michael.pilosov@ucdenver.edu**

**Your paper must be typed. References must be given: (without references, no credit AT ALL will be given on part 2).**

**Your paper must be unique from other class members. It will be graded on grammar.**

**Part 1: Complete the following showing your set-ups. All your comparisons will be made to this first home.**

1. **You are making all comparisons to this home; buying price = $220,000 with a 20 % down and with an interest rate of 6.5%.**

|  |  |
| --- | --- |
| 1. Find the mortgage amount | 1. 2 points |
| 1. Find the monthly payment if the term is 30 years. (Show the set-up) You will be comparing problems 2 and 3 to this and using this for your amortization. | 4 points |
| 1. Find the monthly payment if the term is 15 years. | 4 points |
| 1. Find the total interest on the 30-year loan. | 2 points |
| 1. Find the total interest on the 15-year loan. | 2 points |
| 1. Find the savings on the 15-year loan by comparing the total interest from the 30-year to the 15-year loan. | 2 points |

2. **You are buying a home at $220,000 with 20% down and an interest rate of 5.5% and a term of 30 years.**

|  |  |
| --- | --- |
| 1. Find the monthly payment. (You found the mortgage in problem 1a) Show your set-up | 4 points |
| 1. Find the total interest. | 2 points |
| 1. Find the savings in interest on this compared to the total interest in the home in 1d. (30-year 6.5%) | 2 points |

**3. You are buying a home at $220,000 with an interest rate of 6.5% and put down 30% and take out the mortgage for 30 years.**

|  |  |
| --- | --- |
| a) Find your mortgage. | a.  2 points |
| b) Find your monthly payment. (Show your set-up.) | b.  4 points |
| c) Find the total interest. | c.  2 points |
| 1. Find the savings in this home compared to the total interest in the home from 1d. (you used a down payment of 20% in 1d) | d.  2 points |

**4. Do an amortization for three periods for the house in 1b. (selling price of $220,000 and rate of 6.5% and term is 30 years). You already found the payment in 1b.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Payment number** | **Interests** | **Applied Principle** | **Balance** |
|  |  |  | 4 points |
|  |  |  | 4 points |
|  |  |  | 4 points |

**5. Which option saved you more – the shorter time of 15 years, the cheaper interest rate of 5.5%, or the down payment of 30%?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**How much more? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3 points**

**6. Read example 7, p. 246 section 4D in your book if you need help on this section.**

**- U.S. Bank offers a loan of $176,000 for 30 years at 6.5% with closing costs of $3400 plus 2 points.**

**- First Bank offers a rate of 6% but closing costs of $5000 plus 2 points.**

**Using your information from 1b, answer the following;**

1. **What is the saving in closing costs? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

**b) You already found the monthly payment for US Bank. (Your answer to 1b) What is the monthly payment for First Bank? (Same loan amount, same number of years)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (4 points)**

**c) What is the savings in monthly payments if you go with First Bank?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **How many months would it take to recoup the savings US Bank gives up front?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **What conclusion could you make about closing costs versus a lower interest rate? (Be specific to this part of the problem.)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

**7. Read example 8 on page 248 in your book if you need help here.**

**You are buying a home and have 2 options.**

**Think back to 1b.**

**Option 1: Loan amount of $176,000 at 6.5% for 30-years with 2 points**

**Option 2: Loan amount of $176,000 at 5.5% for 30 years with 4 points**

**Answer the following;**

1. **Find the monthly payment for the 5.5% loan.**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (4 points)**

1. **What is the difference in the 2 payments? (You already found the 6.5% PMT in 1b)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **What would the 2 points cost?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **What would the 4 points cost?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **What is the savings of the 2 points?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **How long would it take to make up for the added up-front cost?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**

1. **What is your conclusion about these options? (be specific)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 points)**