

MATH 1010 Final Project

Due April 23, 2018, 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.

YOU MUST HAND IN A CLEAN COPY OF THIS (See canvas or use separate paper for scratch-work).

ONE CLASS PERIOD WILL BE DEVOTED TO ALLOWING YOU TO WORK TOGETHER ON THIS PART TO CHECK ANSWERS WITH EACH OTHER

NO CREDIT WILL BE GIVEN FOR ANSWERS EVEN IF THEY ARE CORRECT IF WORK IS MISSING.

(THE PURPOSE OF CHECKING WITH OTHERS IS TO AVOID ROUNDING ERRORS)

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

Again, print a second copy and refill neatly if need be.

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

Part 2 is summarized on the second page, and then Part 1 follows.

(Below is for teacher use only)

Points Part 1 _____/20

Points Part 2 _____/35

Total Points _____/55

Part 2: (35 points)

Each student must do this part individually and submit.

After searching the web, books or magazine, write a short article. It should be at least one typed page and not more than three. The minimum* word count is 500 words (about a typed page without absurd fonts/spacing).

Your paper must be typed. 3-5 references must be given. (without references, no credit AT ALL will be given on part 2). Wikipedia is acceptable. Your paper must be unique from other class members. It will be graded on both its content and grammar.

Topics must include a referenced source and may come from:

- 1) How did the last financial crisis happen and why was it so bad? What similarities were there to previous ones? How was it different?
- 2) What role does the Federal Reserve have in determining your ability to get a loan? What is Quantitative Easing and why should you care?
- 3) Are there any signs that we are on the precipice of another recession? What are they? What can the average person do?
- 4) Is buying a home always a good investment? What are the common perceptions and misconceptions about home affordability?
- 5) What are common financial mistakes made by young people and how can they be avoided? What (non-boring) resources exist to improve financial literacy online? (e.g. "The Financial Diet," "Broke Millennial").

Email responses directly (NOT through canvas) to michael.pilosov@ucdenver.edu

*Your response can be below this IF you write it for an audience of your peers and post it to social media (attaching a screenshot as evidence of this when submitting it).

For example, if you are about to graduate and think you want to do topic #5 because you would personally benefit from it (as would your peers), you can create an infographic, or a long (relative to social media) "post" that summarizes the resources you like, some good starting videos with brief summaries, and what you like about it. These types of submissions would not be subject to the word count minimum.

You can receive up to ten extra credit points for creativity catering your response to your specific peer-group (aka be "authentic" in your writing, whatever that means to YOU in particular). For example, if you see a bunch of your friends buying cars (or getting married), and you want to write about auto loans (or financing a wedding) instead of mortgages, that is a wholly acceptable deviation from the topic list. If you are unsure, check with me.

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 payment and with an interest rate of 6.5%.**

a) Find the mortgage amount	a.
b) 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.	b.
c) Find the monthly payment if the term is 15 years.	c.
d) Find the total interest on the 30-year loan.	d.

e) Find the total interest on the 15-year loan.	e.
f) Find the savings on the 15-year loan by comparing the total interest from the 30-year to the 15-year loan.	f.

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.

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

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

a) Find your mortgage.	a.
b) Find your monthly payment. (Show your set-up.)	b.
c) Find the total interest.	c.
d) 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.

4. 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? _____

- 5. 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;

a. What is the saving in closing costs? _____

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)

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

d) How many months would it take to recoup the savings US Bank gives up front?

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

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;

a. Find the monthly payment for the 5.5% loan.

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

c. What would the 2 points cost?

d. What would the 4 points cost?

e. What is the savings of the 2 points?

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

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