

Name \_\_\_\_\_ Group \_\_\_\_\_

### Financial Math Final Assignment

**This project is to be completed on your own. You may ask for help from your peers, but the work must be your own.**

#### **Part A**

Provide a complete annotated solution for each question in Part A. You should write each step clearly (as if you were going to show this to a student in Grade 7) and explain what you are doing (in words). You must use at least 5 steps for each question. If you need more, please add a separate sheet of paper, organized the same way.

#### **Part B**

In Part B you will be given a simple or compound interest equation. Your job is to write a scenario (investing money, population increase or decrease, depreciation of a purchased item, etc.) that fits with equation given.

#### **Part C**

In Part C, you will write and solve your own question. 1 question must involve simple interest, where the unknown variable is  $n$ . 1 question must involve compound interest, where the unknown variable is  $r$ .

**Part A**

1) You put \$450 in a savings account that gives a monthly simple interest rate of 0.8%. How much money will be in your account after 5 years?

<b>Step 1</b>	
Calculations	Explanation

<b>Step 2</b>	
Calculations	Explanation

<b>Step 3</b>	
Calculations	Explanation

<b>Step 4</b>	
Calculations	Explanation

<b>Step 5</b>	
Calculations	Explanation

2) The population of a city is decreasing by 17% every 5 years. If the population of the city is currently 2 180 176, what will be the population in 17 years?

(recall: population increase or decrease always follows an exponential function, so use compound interest)

Step 1	
Calculations	Explanation

Step 2	
Calculations	Explanation

Step 3	
Calculations	Explanation

Step 4	
Calculations	Explanation

Step 5	
Calculations	Explanation

3) You invested \$1150 in an account giving an annual compound interest rate of 3.5%. Your investment is currently worth \$1642. How long ago did you make your investment?

Step 1	
Calculations	Explanation

Step 2	
Calculations	Explanation

Step 3	
Calculations	Explanation

Step 4	
Calculations	Explanation

Step 5	
Calculations	Explanation

**Part B**

Write a scenario to go with each equation. *You do not need to solve these questions.*

Example

Equation	Scenario
$C = 800(1 + 0.007)^{13}$	You invested \$800 at a monthly compound interest rate of 0.7%. What is the value of this investment after 13 years?

4)

Equation	Scenario
$17\,850 = a(1 - 0.09)^5$	

5)

Equation	Scenario
$17\,850 = a(1 - 0.09)^5$	

**Part C**

6) Write a question and provide a complete solution where you must use simple interest and the unknown variable is  $n$



7) Write a question and provide a complete solution where you must use compound interest and the unknown variable is  $r$ .

