MATH 373
Quiz 1
Spring 2018
January 30, 2018

1. Alisa invests 42,000 in Amir Bank. At the end of 10 years, Alisa has 100,000.

   Amir Bank pays interest based on the following:

   a. The first two years, Amir pays an annual effective interest rate of i .

   b. During the next three years, Amir pays a nominal discount rate of 8% compounded quarterly.

   c. During the last five years, Amir pays a force of interest equal to $\delta_t = 0.04 + 0.001t^2$ where t is measured from the date of the original investment of 42,000.

   Determine i .

2. You are given that $v(t) = \left[1 + \beta t^2\right]^{-1}$.

   You are also given that $\delta_5 = \delta_{10}$.

   Determine β.

3. Jordyn invests 1000 in Bank Chen. Bank Chen pays simple interest rate of s. In the 10$^{\text{th}}$ year, Jordyn earns an annual effective interest rate of 5%.

   Calculate the amount of money Jordyn will have at the end of the 10$^{\text{th}}$ year.