Math 373
Quiz 1
Spring 2019
January 24, 2019

1. Michelle invests 10,000 for 10 years. During the first 3 years, Michelle earns a simple interest rate of 10%. During the next 5 years, Michelle earns a compound interest rate of 8%. During the last two years, Michelle earns a rate of interest equivalent to an annual effective discount rate of 6%.

   Determine the amount that Michelle will have at the end of 10 years.

2. You are given that $v(t) = \dfrac{1}{\alpha + \beta t^2}$.

Under this discount function, 500 at time 10 has a present value of 250.

Determine $a(20)$.

3. Let i_{10} be the effective interest rate in the 10th year for simple interest at a simple interest rate of 7%.

   Let d_{10} be the effective discount rate in the 10th year under compound interest at an annual effective interest rate of 4%.

   Calculate $i_{10} - d_{10}$. (Provide your answer to five decimal places.)