Math 112 - Quiz 6
April 3, 2019

Name key
Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) Dorothy deposits $18,000 into an account earning 7.85% compounded quarterly. Determine her effective interest rate. Write your final answer in percent form.

$$E = \left(1 + \frac{r}{n}\right)^n - 1 = \left(1 + \frac{0.0785}{4}\right)^4 - 1$$

$$= 0.08084 = \boxed{8.084\%}$$

2. (5 points) A 30-year-old plans to retire at age 65. She decides to invest her inheritance of $75,000 into an account earning 8.25% compounded semiannually.

   (a) How much money will be in the account when she is 65 years old? → After 35 years

$$A = 75000 * \left(1 + \frac{0.0825}{2}\right)^{(2*35)}$$

$$= \boxed{\$1,270,317.48}$$

   (b) How much of the money in the account is from interest?

$$I = 1270317.48 - 75000$$

$$= \boxed{\$1,195,317.48}$$

3. (3 points) Maria plans to make a lump-sum deposit into an account earning 5.5% compounded monthly. How much should she deposit now in order to have $20,000 in 15 years?

$$20000 = P * \left(1 + \frac{0.055}{12}\right)^{(12*15)}$$

$$P = \frac{20000}{\left(1 + \frac{0.055}{12}\right)^{(12*15)}}$$

$$= \boxed{\$8781.24}$$