Math 112 - Quiz 9
April 11, 2019

Name key
Score _____

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

1. (2 points) We deposit regular semiannual payments into an account earning 7.75% compounded semiannually. What must our regular payments be if we would like to have \$50,000 in 15 years?

Annuity.

$$R = \frac{50000 * (0.0775/2)}{((1 + 0.0775/2)^{(2*15)} - 1)} = \$910.28$$

2. (4 points) For 20 years, \$300 per month is deposited into a regular annuity earning 4.5% compounded monthly.

Annuity.

(a) What is the future value of the account?

$$A = \frac{300 * ((1 + 0.045/12)^{(12*20)} - 1)}{(0.045/12)} = \$116,437.31$$

(b) How much of the future value is from interest?

$$I = 116437.31 - 300 * 12 * 20 = \$44,437.31$$

3. (4 points) Jon borrowed \$1699 for 3 years at 7.5% compounded monthly. How much are his monthly payments? At the end of the 3 years, how much interest will he have paid?

Mortgage Formula.

$$R = \frac{1699 * (0.075/12)}{(1 - (1 + 0.075/12)^{(-12*3)})} = \$52.85$$

$$I = 52.85 * 12 * 3 - 1699 = \$203.60$$