Math 112 - Quiz 6
March 29, 2017

Name key

Score _____

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

1. (3 points) Compute the effective rates to determine which is a better rate: 4.5% compounded monthly or 4.525% compounded quarterly.

4.5% monthly: $E = \left(1 + \frac{0.045}{12}\right)^{12} - 1 \approx 0.045939825 \approx 4.59\%$

4.525% quarterly: $E = \left(1 + \frac{0.04525}{4}\right)^{4} - 1 \approx 0.046023643 1 \approx 4.60\%$

This rate is slightly better.

2. (3 points) How much should be invested now at 6% compounded monthly so that you have \$15000 in 10 years?

$$15000 = P\left(1 + \frac{0.06}{12}\right)^{120}$$

$$P = \frac{15000}{\left(1 + \frac{0.06}{12}\right)^{120}} \approx \$8244.49$$

3. (4 points) \$300 per month is deposited into a regular annuity earning 4.5% compounded monthly. How much will you have have after 20 years? How much of that is interest?

$$A = \frac{300\left(\left(1 + \frac{0.045}{12}\right)^{240} - 1\right)}{\left(0.045/12\right)} \approx \$116,437.31$$

$$\text{Interest} = 116437.31 - 300(12)(20) = \$44,437.31$$