

Math 112 - Quiz 7

October 20, 2016

Name key

Score _____

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

1. (5 points) Suppose you begin depositing monthly payments into an account earning 10% compounded monthly. Your goal is to accumulate \$15,000 in 6 years. What should your monthly payments be? How much total interest will you earn over the six years?

$$R = \frac{15000 \left(\frac{0.10}{12} \right)}{\left(\left(1 + \frac{0.10}{12} \right)^{72} - 1 \right)} = \$152.89$$

$$\begin{aligned} \text{TOTAL PAYMENTS} &= \\ 152.89 \times 72 &= 11008.08 \end{aligned}$$

↓

$$\begin{aligned} \text{TOTAL INTEREST IS} & \\ \$3991.92 & \end{aligned}$$

2. (3 points) How much money would you need to deposit now in order to have \$18,000 in four years if the interest is 5.9% compounded daily?

$$18000 = P \left(1 + \frac{0.059}{365} \right)^{(365)(4)}$$

$$18000 = P (1.26615\dots)$$

$$P = \$14216.32$$

3. (2 points) \$600 is deposited into an account earning 7.5% simple interest. How much money is in the account after 4.5 years?

$$I = 600(0.075)(4.5) = 202.50$$

$$A = \$802.50$$