Worksheet 16
Math 181: Fall 2015

Simplify your answers. (You can use a calculator on this worksheet.)

1. Suppose Mary wants to purchase an annuity that pays $100/month for the next 10 years. The annual interest rate on this annuity is 6% compounded monthly. How much will she have to pay now to secure such an annuity?

\[ P = \]

2. Suppose a state lottery has a prize of $5,000,000. If someone wins, then the winner has a choice of either being paid a smaller amount all at once, or getting paid $5,000,000, broken up into equal monthly payments over 25 years. If the winner chooses monthly payments, then the state purchases an annuity that then makes the payments to the winner.

(a) How much should the monthly payments be?

\[ d = \]

(b) Suppose the insurance company selling the annuity to the state offers an annual interest rate of 4.5%. What initial principal should the state pay in order to make the monthly payments you found in part (a) for 25 years? (Remark: This initial principal is the “smaller amount” that the winner can choose to be paid all at once.)

\[ P = \]

3. Suppose an insurance company is offering annuities with annual interest rates of 3.8% compounded monthly for 15 years. If Mary buys an annuity with initial principal $25,000, how much will she receive each month for 15 years?

\[ d = \]