STAT 472
Quiz 5
Fall 2018
October 29, 2018

1. Mindy is (65) and is retiring. She has 1,000,000 in her retirement fund that will be used to purchase an annuity for her retirement.

    You are given that mortality follows the Standard Ultimate Life Table with interest at 5%. You are also given that deaths are uniformly distributed between integral ages.

    a. (3 points) If Mindy buys a life annuity due with annual payments, her annual payment will be 73,800 to the nearest 100. Calculate the annual payment to the nearest 1.

    b. (5 points) If Y is the present value random variable for Mindy's life annuity due, calculate the $Var(Y)$.

c. (5 points) If Mindy buys a life annuity due with monthly payments, calculate the monthly payment that Mindy would receive.

d. (5 points) If Mindy buys a 10 year certain life annuity due with annual payments, then the first 10 payments are guaranteed to be made even if Mindy dies during the first ten years. Calculate the annual payment under such an annuity.

e. (2 points) Explain why the annual payment in Part a is less than the annual payment (which is twelve times the monthly payment) in Part c.

STAT 472
Quiz 5
Fall 2018
October 29, 2018

1. Madison is (60) and is retiring. She has 1,000,000 in her retirement fund that will be used to purchase an annuity for her retirement.

   You are given that mortality follows the Standard Ultimate Life Table with interest at 5%.

   a. (3 points) If Madison buys a life annuity due with annual payments, her annual payment will be 67,100 to the nearest 100. Calculate the annual payment to the nearest 1.

   b. (5 points) If Y is the present value random variable for Madison's life annuity due, calculate the $Var(Y)$.

c. (5 points) If Madison buys a life annuity due with monthly payments, calculate the monthly payment that Madison would receive. Use the three term Woolhouse formula to calculate the monthly benefit.

d. (5 points) Madison decides to purchase an annual life annuity due with annual payments. The first fifteen payments will be two times the payments made in thereafter. Determine Madison's first payment.

e. (2 points) Explain why the annual payment in Part a is less than the annual payment (which is twelve times the monthly payment) in Part c.