

Homework Assignment # 4 (max. points = 20)
Due at the beginning of class on Thursday February 14, 2008

Please show your work - enough to show that you understand how to do the problem. Circle your final answer. Full credit can only be given only if the answer and work leading to the answer are correct.

1. Find the present value of an annuity that makes payments continuously at a rate of 500 per year for 15 years. The force of interest is $\delta = .05$.
2. Money is deposited continuously into an account at the rate of x per year. After 10 years, the account has accumulated to \$100,000. If the effective annual rate of interest is $i = 8\%$, compute x .
3. There is \$3,000 in a fund that is accumulating interest at 5% per annum convertible continuously. If money is being withdrawn continuously at the rate of \$400 per annum, how long will the fund last?
4. Given $\delta = .1$, evaluate $\frac{a_{\overline{10}|}^{(12)}}{a_{\overline{10}|}}$.
5. Find the force of interest at which $\bar{s}_{\overline{20}|} = 4\bar{s}_{\overline{10}|}$.
6. In order to accumulate \$5,000, you will deposit \$100 at the end of each month for as long as necessary. Annual interest is $i^{(12)} = 15\%$. How many regular payments are required to accumulate the \$5,000? (The answer will be an integer.)
7. For the above problem, if a final fractional payment will be added to the last regular payment, what must this fractional payment be?
8. An account has \$10,000 and earns interest at an effective annual rate of 6%. Payments of \$700 will be withdrawn from this account at the end of each year until the account is empty. Find the number of regular payments that will be withdrawn from the account.
9. For the above problem, how much money will be in the account immediately after the last regular withdrawal has been made?
10. Solve $s_{\overline{3}|i} = 3.31$ for i .