

SAMPLE PROBLEMS FOR EXAM II

MATH 630 Actuarial Math, 4/19

For the exam show your work to ensure credit for the solution of each problem. Put a box around the answer to each problem. No use of calculators, books or notes is allowed. No use or viewing of electronic devices is allowed.

1. A 3000 par value, 10 year bond with quarterly 4% coupons is purchased to yield 10% per year convertible semiannually. Determine the book value of this bond at the end of four years after the coupon payment.
2. A bond of 1000, redeemable at par in five years pays interest at 10% per year convertible semiannually. Find the price to yield an investor a) 6% effective per half year and b) 10% per year.
3. A 100 par value 15-year bond with coupon rate 9% convertible semiannually is selling for 94. Find the yield rate.
4. Find the book value immediately after the payment of the 14th coupon of a ten year 1000 par value bond with semiannual coupons, if the semiannual bond interest rate is 5% and the yield rate is 12% convertible semiannually.
5. Find the price of a 1000 par value bond with coupons at 11% convertible semiannually, and for which the yield rate is 5% per half year for the first 5 years and 6% for the last 5 years.
6. A 10-year bond of 1000 face amount with semiannual coupons redeemable at par is bought at a discount to yield 12% convertible semiannually. If the book value six months before the redemption date is 985.85, find the original purchase price.