Ma 308 ~ Theory of Interest

Homework Problems
Write Up/Down on Bonds

page 393, # 1. A 10,000 par value 10-year bond with 8% annual coupons is bought at a premium to yield an annual effective rate of 6%. Calculate the interest portion of the 7th coupon. [5/03 #42]

page 393, # 4. Laura buys two bonds at time 0. Bond X is a 1000 par value 14-year bond with 10% annual coupons. It is bought at a price to yield an annual effective rate of 8%. Bond Y is a 14-year par value bond with 6.75% annual coupons and a face amount of F. Laura pays P for the bond to yield an annual effective rate of 8%. During year 6, the writedown in premium (principal adjustment) on bond X is equal to the writeup in dsicount (principal adjustment) on bond Y. Calculate P. [SAMPLE/00 #38]

page 393, # 8. Becky buys an n-year 1,000 par value bond with 6.5% annual coupons at a price of 825.44. The price assumes an annual effective yield rate of i. The total write-up in book value of the bond during the first 2 years after purchase is 23.76. Calculate i ($i > 0$) [SOA 5/93 #14]

page 394, # 15. A \$1000 par value ten-year 8% bond has semiannual coupons. The redemption value equals the par value. The bond is purchased at a premium to yield 6% convertible semiannually. What is the amount for amortization of the premium in the tenth coupon? [CAS 5/87 #15]

page 395, # 17. A 15-year bond with semiannual coupons has a redemption value of \$100. It is purchased at a discount to yield 10% compounded semiannually. If the amount for accumulation of discount in the 27th coupon payment is \$2.25, what is the total amount of discount in the original purchase price? [CAS 5/85 # 14]

page 395, # 18. A \$1,000 par value bond with 4% annual coupons is purchased at a discount ten years prior to the maturity date. THe proceeds of the coupons are invested in a savings account with a 5% effective annual rate of interest. The effective yield on the ten year investment—including the bond and the savings account—is 6%. What is the book value of the bond one year after purchase? [CAS 5/83 # 9]

The previous problems are taken from: Harold Cherry and Rick Gorvett. *Study Manual for Exam FM/Exam 2: Financial Mathematics and Financial Economics.* Actuarial Study Materials, 10th edition, 2010.