Worksheet # 6

1. **Page 105**: # 5-1, 5-13, 5-5, 5-24, 5-26(a).

2. What price is paid for a $2000 par value 10-year bond with 8.4% coupons paid semiannually that is bought to yield 10% converted semiannually?

3. A 15-year bond with 8% coupons paid semiannually will be redeemed at $1400. The bond is bought to yield 7% convertible semiannually. If the purchase price is $1500, find the par value of the bond.

4. A 10-year bond with coupons at 8.4% convertible quarterly is redeemed at 1200. If the bond is purchased at $900 to yield 10% convertible quarterly, find the face value of the bond.

5. A 10-year bond is purchased at $1200 and has 9% coupons converted semiannually. It redeems at its par value of $1100. What is the yield rate? (Express in terms of semiannual rates.)

6. A 15-year 2000 par value bond with 9% semiannual coupons was issued on January 1, 1980 and has a redemption value of 2500 at maturity. It is purchased on January 1, 1985 (after coupon is paid) at a price $P$ to yield 8% converted semiannually. Find $P$.

7. A 20-year $1000 par value bond was issued on 2/12/80 with 9% coupons convertible semiannually and is bought to yield 8% converted semiannually.

   (a) What is the book value of the bond on 2/12/87 (after coupon is paid)?
   (b) What is the book value of the bond on 2/12/98 (after coupon is paid)?
   (c) What is the write down (principal adjustment) in the 10th coupon payment?

8. A 1000 par value 15-year bond with 10% semiannual coupons has a book value of 875 after the 20th coupon is paid. What is the yield rate converted semiannually?

9. A 10-year $1000 par value bond was issued on 4/15/91 with 8% semiannual coupons. It is purchased on 9/15/95 at a price to yield 10% converted semiannually. Find the market price, accrued coupon and flat price of the bond using the **Theoretical Method** and the **Practical Method**.


11. Dick purchases an $n$-year 1000 par value bond with 12% annual coupons at an annual effective yield of $i$, $i > 0$. The book value of the bond at the end of year 2 is 1479.65, and the book value at the end of year 4 is 1439.57. Calculate the price of the bond.

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**Answers**

1. Page 105: (#5-1) 1067.95 (#5-13) (a) 1049.93 (b) 1077.93 (c) 1091.93 (#5-5) 1120.42 (#5-24) (a) 903.47 (b) 6.15% (#5-26a) 929.76
2. 1800.60  3. 1360.93  4. 859.48  5. 7.68% converted semiannually
6. 2364.09  7. (a) 1079.91  (b) 1018.15  (c) 1.48  8. 13.52% converted semiannually

   *Practical Method*: Flat price = 949.34, Accrued coupon = 33.33, Market price = 916.01

10. Page 110 (#5-28) (a) 875.91  (b) 1128.21  (c) 1000  11. 1514.79