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| 1.                  IBM 5 year 2% annual coupon bond is selling for $950. How much this IBM bond’s YTM?  **3.09%**2.                  IBM 10 year 4% semi\_annual coupon bond is selling for $950. How much is this IBM bond’s YTM? **4.63%****Rate ? rate(10\*2m 40/2, -950, 1000)\*2****Nper 10\*2****Pmt 4%\*1000/2****Pv -950****Fv 1000**3.                  IBM 10 year 5% annual coupon bond offers 8% of return. How much is the price of this bond?   **798.7**4.                  IBM 5 year 5% semi-annual coupon bond offers 8% of return. How much is the price of this bond? **$878.34****Rate 8%/2****Nper 5\*2****Pmt 5%\*1000/2****Pv ? abs(pv(8%/2, 5\*2, 5%\*1000/2,1000))****Fv 1000**5.                  IBM 20 year zero coupon bond offers 8% return. How much is the price of this bond? **208.29****All zero coupon bond should be treated as semi annual coupon bond****Rate 8%/2****Nper 20\*2****Pmt 0****Pv ? abs(pv(4%, 40, 0, 1000))****Fv 1000**6.                  Collingwood Homes has a bond issue outstanding that pays an 8.5 percent coupon and matures in 18.5 years. The bonds have a par value of $1,000 and a market price of $964.20. Interest is paid semiannually. What is the yield to maturity? **8.9%****Rate ? rate(18.5\*2, 8.5%\*1000/2, -964.2,1000)\*2 = yield to maturity, your return from today to maturity****Nper 18.5\*2=37****Pmt 8.5%\*1000/2=42.5****Pv -964.2****Fv 1000**7.                  Grand Adventure Properties offers a 9.5 percent coupon bond with annual payments. The yield to maturity is 11.2 percent and the maturity date is 11 years from today. What is the market price of this bond if the face value is $1,000? **895****Rate 11.2%****Nper 11****Pmt 9.5%\*1000****Pv ? abs(pv(11.2%, 11, 95, 1000))****Fv 1000**8.                  The zero coupon bonds of D&L Movers have a market price of $319.24, a face value of $1,000, and a yield to maturity of 9.17 percent. How many years is it until these bonds mature?  **12.73 years****Rate 9.17%/2****Nper ? nper(9.17%/2, 0, -319.24,1000)/2****Pmt 0****Pv -319.24****Fv 1000**9.                  A zero coupon bond with a face value of $1,000 is issued with an initial price of $212.56. The bond matures in 25 years. What is the implicit interest, in dollars, for the first year of the bond's life? **6.29%** The bonds issued by Stainless Tubs bear a 6 percent coupon, payable semiannually. The bonds mature in 11 years and have a $1,000 face value. Currently, the bonds sell for $989. What is the yield to maturity?  **6.14%** | **Summary** of bond pricing **EXCEL** functions To calculate bond price (annual coupon bond):Price=abs(pv(yield to maturity, years left to maturity, coupon rate\*1000, 1000) To calculate yield to maturity (annual coupon bond)::Yield to maturity = rate(years left to maturity, coupon rate \*1000, -price, 1000) To calculate bond price (**semi**-annual coupon bond):Price=abs(pv(yield to maturity**/2**, years left to maturity**\*2**, coupon rate\*1000**/2**, 1000) To calculate yield to maturity (**semi**-annual coupon bond):Yield to maturity = rate(years left to maturity**\*2**, coupon rate \*1000**/2**, -price, 1000)**\*2**To calculate number of years left(annual coupon bond)Number of years =nper(yield to maturity,  coupon rate\*1000, -price, 1000)To calculate number of years left(semi-annual coupon bond)Number of years =nper(yield to maturity/2,  coupon rate\*1000/2, -price, 1000)/2 To calculate coupon (annual coupon bond)Coupon = pmt(yield to maturity, number of years left, -price, 1000)Coupon rate = coupon / 1000To calculate coupon (semi-annual coupon bond)Coupon = pmt(yield to maturity/2, number of years left\*2, -price, 1000)\*2Coupon rate = coupon / 1000  **Math Formula (FYI)** image023.jpg C: Coupon, M: Par, $1,000; i: Yield to maturity; n: years left to maturity  image024.jpg For Semi-annual, F=2 for semi-annual coupon  image025.jpg M: Par, $1,000;  i: Yield to maturity; n: years left to maturity image026.jpg   [Bond calculation](http://www.jufinance.com/bond) (Thanks to Dr. Lane)[www.jufinance.com/bond](http://www.jufinance.com/bond)  |