Bond Formulas:

$$\text{Current Yield} = \frac{\text{Annual Interest}}{\text{Market Price}}$$

$$\text{Yield to Maturity} = \frac{\text{Annual Interest} + \dfrac{\text{Par Value} - \text{Market Price}}{\text{Number of Years to Maturity}}}{\dfrac{\text{Par Value} + \text{Market Price}}{2}}$$

$$\text{Yield to Call} = \frac{\text{Annual Interest} + \dfrac{\text{Call Price} - \text{Market Price}}{\text{Number of Years to Call}}}{\dfrac{\text{Call Price} + \text{Market Price}}{2}}$$

$$\text{Taxable Equivalent Yield (Fed only)} = \frac{\text{Municipal Bond Yield}}{1.0 - \text{Federal Marginal Tax Bracket}}$$

$$\text{Taxable Equivalent Yield (Fed \& State)} = \frac{\text{Municipal Bond Yield}}{1.0 - \left[\text{Fed Tax Bracket} + \left(\text{State Tax Bracket} * \left(1.0 - \text{Fed Tax Bracket}\right)\right)\right]}$$

The taxable equivalent yield (Fed & State) assumes that the investor is itemizing deductions on their Federal taxes. Since most investors who buy tax-free municipal bonds are high-net worth or high-income investors and almost always itemize deductions on their tax returns, this is normally a valid assumption.

Bond Price   = Present Value of Interest Income   + Present Value of Repayment of Principal
              = Annual Interest * present value of stream factor + Par Value * present value of lump sum factor

(Need to use: Present Value of a Stream of Payments [left table] and Present Value of a Lump Sum [right table])

Does the above formula look familiar? It is essentially the same formula as the Discounted Cash Flow Model from chapter 6 that we used for stocks. With stocks, we used the present value of the future dividend cash flows and the present value of the expected price of the stock in 3 to 5 years. With bonds, we use the present value of the future interest income and the present value of the principal repayment when the bond matures. Unlike stocks, with bonds, we know exactly what cash flows we are going to get (assuming no default on the bonds). Therefore, our calculations of bond valuations are much more predictable and reliable than our calculations of stock valuations. Yep! Bonds are boring! That is why many people love them. As we have said in the past, in the investment world, boring is good!