1. Consider a bond which pays 7% semiannually and has 8 years to maturity. The market requires an interest rate of 8% on bonds of this risk. What is this bond's price?

\[ N = 16 \quad I/Y = 4 \quad PMT = 35 \quad FV = 1000 \quad PV = 941.74 \]

2. Winston Enterprises has a 15-year bond issue outstanding that pays a 9% coupon. The bond is currently priced at $894.60 and has a par value of $1,000. Interest is paid semiannually. What is the yield to maturity?

\[
\begin{align*}
\$894.60 &= \frac{.09 \times 1000}{2} \times \left\{ 1 - \frac{1}{(1 + \frac{r}{2})^{15 \times 2}} \right\} + \frac{1000}{(1 + \frac{r}{2})^{15 \times 2}}; \text{ This can not be solved directly, so it's easiest to just use the calculator method to get an answer. You can then use the calculator answer as the rate in the formula just to verify that your answer is correct.}
\end{align*}
\]

Enter \[15 \times 2\] \(i/2\) \(-894.60\) \(90/2\) \(1,000\)

Solve for \(I/Y = 5.21468 \times 2 = 10.40294\)

Answer is 10.40% (rounded)

3. Party Time, Inc. has a 6% coupon bond that matures in 11 years. The bond pays interest semiannually. What is the market price of a $1,000 face value bond if the yield to maturity is 12.9%?

\[
P = \frac{.06 \times 1000}{2} \times \left\{ 1 - \frac{1}{(1 + \frac{.129}{2})^{11 \times 2}} \right\} + \frac{1000}{(1 + \frac{.129}{2})^{11 \times 2}}; \text{ P = $347.53 + $252.81 = $600.34}
\]

Enter \[11 \times 2\] \(12.9/2\) \(60/2\) \(1,000\)

Solve for \(-600.34\)

4. High Noon Sun, Inc. has a 5%, semiannual coupon bond with a current market price of $988.52. The bond has a par value of $1,000 and a yield to maturity of 5.29%. How many years is it until this bond matures?

\[
\begin{align*}
\$988.52 &= \frac{.05 \times 1000}{2} \times \left\{ 1 - \frac{1}{(1 + \frac{.0529}{2})^{y \times 2}} \right\} + \frac{1000}{(1 + \frac{.0529}{2})^{y \times 2}}; \text{ It's easiest way to solve this problem is using financial calculator. You can then use the calculator answer as the time period in the formula just to verify that your answer is correct.}
\end{align*}
\]

Enter \[5.29/2\] \(-988.52\) \(50/2\) \(1,000\)

Solve for \(9\)

The number of six-month periods is 9. The number of years is 4.5.
5. Jackson Central has a 6-year, 8% annual coupon bond with a $1,000 par value. Earls Enterprises has a 12-year, 8% annual coupon bond with a $1,000 par value. Both bonds currently have a yield to maturity of 6%. What happens to the value of abovementioned bonds if the market yield increases to 7%?

$$P_{\text{Jackson}} = (.08 \times 1,000) \times \left\{ 1 - \frac{1}{1/(1+.06)^6} \right\} + \frac{1,000}{(1+.06)^6}; \text{P} = 393.39 + 704.96 = 1,098.35$$

Enter 6 6 80 1,000
Solve for -1,098.35

$$P_{\text{Jackson}} = (.08 \times 1,000) \times \left\{ 1 - \frac{1}{1/(1+.07)^6} \right\} + \frac{1,000}{(1+.07)^6}; \text{P} = 381.323 + 666.342 = 1,047.665$$

Enter 6 7 80 1,000
Solve for -1,047.67

Difference in Jackson’s prices = $1,047.67 - $1,098.35 = -$50.68 (decrease)

percentage difference in Jackson’s prices = \( \frac{$1,047.67 - $1,098.35}{$1,098.35} = -.04614 = -4.61\% \)

$$P_{\text{Earls}} = (.08 \times 1,000) \times \left\{ 1 - \frac{1}{1/(1+.06)^{12}} \right\} + \frac{1,000}{(1+.06)^{12}}; \text{P} = 670.71 + 496.97 = 1,167.68$$

Enter 12 6 80 1,000
Solve for -1,167.68

$$P_{\text{Earls}} = (.08 \times 1,000) \times \left\{ 1 - \frac{1}{1/(1+.07)^{12}} \right\} + \frac{1,000}{(1+.07)^{12}}; \text{P} = 635.415 + 444.012 = 1,079.427$$

Enter 12 7 80 1,000
Solve for -1,079.43

Difference in Earls’ prices = $1,079.43 - $1,167.68 = -$88.25 (decrease)

percentage difference in Earls’ prices = \( \frac{$1,079.43 - $1,167.68}{$1,167.68} = -.07558 = -7.56\% \) (decrease)

6. Leslie’s Unique Clothing Stores offers a common stock that pays an annual dividend of $2.00 a share. The company has promised to maintain a constant dividend. How much are you willing to pay for one share of this stock if you want to earn 12% return on your equity investments?

$$P_0 = \frac{2.00}{.12}; \text{P}_0 = 16.67$$
7. Martin’s Yachts has paid annual dividends of $1.40, $1.75, and $2.00 a share over the past three years, respectively. The company now predicts that it will maintain a constant dividend since its business has leveled off and sales are expected to remain relatively constant. Given the lack of future growth, you will only buy this stock if you can earn at least a 15% rate of return. What is the maximum amount you are willing to pay to buy one share today?

\[ P_0 = \frac{2.00}{.15}; \quad P_0 = \$13.33 \]

8. Bet’R Bilt Bikes just announced that its annual dividend for this coming year will be $2.42 a share and that all future dividends are expected to increase by 2.5% annually. What is the market rate of return if this stock is currently selling for $22 a share?

\[ \frac{22.00}{R - .025} = \frac{2.42}{R}; \quad R = 13.50\% \]

9. Shares of common stock of the Samson Co. offer an expected total return of 12%. The dividend is increasing at a constant 8% per year. The dividend yield must be:

\[ .12 = \frac{D_1}{P_0} + .08; \quad \text{Dividend yield} = 4\% \]

10. Turnips and Parsley common stock sells for $39.86 a share at a market rate of return of 9.5%. The company just paid its annual dividend of $1.20. What is the rate of growth of its dividend?

\[ \frac{39.86}{.095 - g} = \frac{1.20 \times (1 + g)}{.095 - g}; \quad g = 6.3\% \]

11. The Extreme Reaches Corp. last paid a $1.50 per share annual dividend. The company is planning on paying $3.00, $5.00, $7.50, and $10.00 a share over the next four years, respectively. After that the dividend will be a constant $2.50 per share per year. What is the market price of this stock if the market rate of return is 15%?

\[ P_4 = \frac{2.50}{.15}; \quad P_4 = \$16.6667 \]

\[ P_0 = \frac{3.00}{(1.15)^1} + \frac{5.00}{(1.15)^2} + \frac{7.50}{(1.15)^3} + \frac{10}{(1.15)^4} + \frac{16.6667}{(1.15)^4}; \quad P_0 = \$26.57 \]

12. The Lighthouse Co. is in a downsizing mode. The company paid a $2.50 annual dividend last year. The company has announced plans to lower the dividend by $.50 a year. Once the dividend amount becomes zero, the company will cease all dividends permanently. The required rate of return is 16%. What is one share of this stock worth?

**Dividends for the next three years are $.56, $.12, and $.24.**

\[ P_3 = \frac{1.50}{.115}; \quad P_3 = \$13.04348; \quad P_0 = \frac{.56}{(1.115)^1} + \frac{.12}{(1.115)^2} + \frac{.24}{(1.115)^3} + \frac{13.04348}{(1.115)^3}; \quad P_0 = \$12.43 \]