PROBLEM SET 2

5.4 Effective annual rate of 10%:
Semi-annual discount factor = $(1.1)^{0.5} - 1 = 0.04881 = 4.881\%$
Price = $\$40\ A^{40}_{0.04881} + \$1{,}000 / 1.04881^{40}$
= \$846.33

5.5 $\$923.14 = C\ A^{30}_{0.05} + \$1{,}000 / 1.05^{30}$
$= (15.37245)\ C + \$231.38$
$C = \$45$

5.10 $P_A = (\$2{,}000\ A^{16}_{0.06}) / (1.06)^{12} + (\$2{,}500\ A^{12}_{0.06}) / (1.06)^{28} + \$40{,}000 / (1.06)^{40}$
=\$18,033.86
$P_B = \$40{,}000 / (1.06)^{40} = \$3{,}888.89$

5.17 a. $P = \$2 / (0.12 - 0.05) = \$28.57$
b. $P_{10} = D_{11} / (r-g)$
$= \$2\ (1.05^{10}) / (0.12 - 0.05)$
$= \$46.54$

5.21 Dividend one year from now = $\$5\ (1 - 0.10) = \$4.50$
Price = $\$5 + \$4.50 / \{0.14 - (-0.10)\}$
= \$23.75
Since the current \$5 dividend has not yet been paid, it is still included in the stock price.

5.27 Price = $1.40\ (1.05) / 0.10 - 0.05$
Price = \$29.40

5.30 Price = $\{3 / 1.15\} + \{4.5 / (1.15)^2\} + \{4.725 / 0.15 - 0.05\}$
$= 2.61 + 3.40 + 47.25$
= \$53.26