1. Use the following information for the next several questions. Consider a world of Perfect Capital Markets. This world has no corporate or personal taxes, all investors have homogeneous expectations, no bankruptcy costs, and M&M's no-tax theory of capital structure is true. Company Y is financed has the following market value balance sheet:

Assets = $407
Equity = $407
Liabilities = $0

The firm had $46.00 in EBIT last year, and has just paid its annual dividend. The firm has 80 shares outstanding. The firm expects the same returns for the foreseeable future. The firm is a zero growth firm that pays out all excess earnings as a once per year end of year dividend. Any time the firm changes its capital structure, the firm would still have a 5% yield. The expected return on the market portfolio is 10%. Given this information, answer the following questions:

a. (1 point) What is the firm's return on equity? Solve for net income=46-0=46-0=46, then ROE=NI/E=46/407=11.30%

b. (1 point) What is the firm's current weighted average cost of capital. Since all equity, WACC=ROE=11.30%

c. (1 point) What is the current price per share? 407/80=$5.0875

d. (1 point) What is the beta of the firm? 11.30 = 5 + (10-5)*B => B=1.26

e. (1 point) What is the firm's dividends per share? NI/Number of Shares = 46/80=$.575

Now assume that the above firm issues $250 in debt and uses the funds to repurchase equity. This change in capital structure reveals no new information about future firm prospects.

f. (1 point) What is the beta of the firm's levered equity? 2. Now consider a DIFFERENT COMPANY

With annual interest payments. The firm's debt is risk-less, selling at par, and has a 5% current yield. If the firm were to change its capital structure, new debt would still have a 5% yield. The expected return on the market portfolio is 10%. Given this information, answer the following questions:

a. (1 point) What is the value of the firm's perpetual debt tax shield? Tax rate * Debt = 35%*150=52.5

b. (1 point) What is the current weighted average cost of capital (WACC)? Step 1, Find rs which equals ROE. Ebit 37 – Interest 10.50 = EBIT 26.50 – Taxes 9.275 = Net Income 17.225. ROE = Net Income / Equity = 17.225/151 = 11.4%.  step 2, solve for WACC = (150/301*7%*(1-35%)) + (151/301*11.4%)=2.267+5.719=7.99%

c. (1 point) What is the firm's new Weighted Average Cost of Capital? 433.5 = 528.57 + - 95.07.  This question demonstrates some of the problems with the M&M no taxes theory. A third solution was to be changed.

d. (1 point) What is the overall firm's new return on levered equity? Method 1, recognize that stock goes up in value by the amount of the return on equity of 21.33% per year (from step g), thus the beginning of the year value of 5.0875 is a present value, n=1, 21.33% and FV= End of Year Value = $6.17

Method 2, Step 1) solve for the new number of shares, old shares (80) – shares repurchased (250/5.0875=49.14) = new shares (30.86 shares). Price per share = value of equity (157+33.50=190.5)/number of shares (30.86) = $6.17

e. (1 point) Now assume that you are at the end of 10 years, just before paying the annual dividend and interest, what is the expected stock price? Under perfect capital markets, the firm value and WACC does not change, so therefore the stock price of $5.0875 does not change.

f. (1 point) Now assume that you are at the end of 10 years, just before paying the annual dividend, what is the expected stock price?

g. (1 point) Now assume that at the beginning of 11 years, just after paying the annual dividend, what is the expected stock price?