## Economics 362 – Practice Final Exam

- 1. Using the Black Scholes formula, compute the price of a call option with strike price X = 45 expiring in 156 days. The current stock price is S = 44.375, the riskless rate is r = 0.07 and the volatility is  $\sigma = 0.31$ .
- 2. Find the combination of securities giving the following payoff on maturity.



- 3. Company X has been paying a dividend of \$4 for a long time. The company pays all its earnings as dividends, and it is expected to have constant earnings for each future period. There are 100000 shares outstanding, which means that in each period the total amount of earnings is 400000. The appropriate rate of discount is 5%.
  - (a) Suppose that you are at time zero, and the current dividend has just been paid. Compute the price  $p_0$  of each share.
  - (b) Suppose that at period zero the company decides to cut its dividend to zero for period 1, and it announces that it will use the money to repurchase shares instead.
    - i. How many shares will Company X purchase? What will be the price  $p_1$  at which the shares will be purchased at time 1? (Beware: it is **not** \$80)
    - ii. What is the immediate price reaction? That is, what is the price  $p_0$  when the company decides to change the policy?