Problem Set 4 for Economics 180.367:
Investments and Portfolio Management
Due at the beginning of class on October 23.

Note: Point totals are shown at the beginning of each question. It is important to show your work.

1. (30 pts). Please download monthly value-weighted returns on 10 industry portfolios, July 1926 to August 2018 from this webpage: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ftp/10_Industry_Portfolios.TXT.zip
Consider a momentum strategy where each month you go long whichever industry had the highest return in the previous month and go short whichever industry had the lowest return in the previous month.
(a) What would your average monthly percentage return on this strategy have been?
(b) In what percentage of months would you have earned returns greater than zero on this strategy?
In answering (a) and (b) you should neglect transactions costs, but remember that transactions costs are very important in practice.

2. (10 pts) WARP industries pays a dividend of $1 per share this year. Its current stock price is $50, and its dividends are expected to grow at a rate of 3% per year forever, so the dividend will be $1.03 next year. Based on the above information, what is the required rate of return on WARP industries’ stock?

3. (15 pts) General American Investors Company (Bloomberg: GAM US Equity) is a large closed end fund. As of October 9, 2018, what was it’s share price? What was it’s net asset value (per share)? If you were an investor with an infinite horizon, who could go short or long any asset without any transactions costs, what arbitrage would you undertake?

4. (15 pts) A ten-year bond has a 4% coupon rate (paid semiannually). The face value is $100, but it trades for $105. The zero-coupon ten-year bond has an interest rate of 3.8% (with semiannual compounding). Assuming no arbitrage, what is the price of a ten-year bond with an 8% coupon rate?

5. (15 pts) Using Bloomberg, suppose that you had bought the 1% August 31, 2019 Treasury note on 8/31/2017 and sold it on 8/31/2018. What would your holding period return have been? In doing this calculation, you can neglect accrued interest because the trade dates are both coupon dates. In both this question and the next one, please obtain the securities prices from Bloomberg in decimal form to the nearest cent.

6. (15 pts) Using Bloomberg, suppose that you had bought the 2% February 15, 2025 Treasury note on October 9, 2018, for settlement the next business day (October 10). What would the dirty (“all in”) price of this have been (in decimal form)?