Problem Set 4 for Economics 180.367: 
Investments and Portfolio Management  
Due at the beginning of class on October 22.

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 30 industry portfolios, July 1926 to August 2019 from this webpage:  
https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ftp/30_Industry_Portfolios_CSV.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. (20 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. (10 pts) A ten-year bond has a 2% coupon rate (paid semiannually). The face value of the bond is $100. It trades for $102. What is the yield to maturity (with semiannual compounding)?

4. (20 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. (20 pts) Suppose that you had bought a 2% November 15, 2025 Treasury note on July 9, 2019, for settlement the next business day (July 10) at a price of $95.50. The 2019 coupon dates are May 15, 2019 and November 15, 2019. What would the dirty (“all in”) price of this have been (in decimal form)?