FM 5021

1) Consider the following yield curve (continuously compounded):

Maturity (Years)	Rate (annualized)
.5	1.5 %
1	1.75 %
1.25	2.0 %
1.5	2.0 %
1.75	2.1 %
2.0	2.2 %

a) What is the forward rate corresponding to the 6 months starting in 1.5 years?

b) You are long an FRA to pay 2.0% (continuously compounded) on \$100 for the same period as in part (a). What is the value of the contract right now?

c) What is the swap rate for a swap that starts today and pays semiannually for the next 4 6−month periods? (so, the swap has a life of 2 years)

d) What is the swap rate for a swap that starts in 1 year and pays semiannually for the next 2 6−month periods?

e) What is the the price of a floating coupon paying bond expiring in 2 years and paying coupons according to the given curve every 6 months?

f) Same as the previous question but now the bond pays a rate equal to the 6−month rate plus 1%.

g) Same as part (e) but the bond expires in 1.75 years and 3 months ago the 6-month rate was .5%.

h) Let $f(0, .5, 1), f(0, 1, 1.5), f(0, 1.5, 2)$ be the corresponding forwards. Suppose that you structure a bond starting today, expiring in 2 years and paying different but FIXED coupons every 6 months. The coupons will be equal to $R(0, .5$ in 6Z months and the corresponding forwards (computed today) for each of the other coupons. What is the price of this bond today?