Problem Set #5 (Mortgages and Fed Policy)

Economics 252
Financial Markets
Prof. R. Shiller

1. What is the monthly payment on a forty-year $100,000 home mortgage with a fixed rate of 5%?

2. What fraction of the first monthly payment (one month after closing on the home) is amortization of principal? What fraction is interest?

3. What is the mortgage balance after one month?

4. What fraction of the last monthly payment (exactly forty years after closing) is amortization of principal? What fraction is interest?

5. Why, in words, did the allocation between principal and interest change between the first and last payments?

6. Now consider a mortgage that differs from the above only in term: it is 20-year rather than 40-year. Is its monthly payment higher or lower? Is the allocation between interest and principal higher or lower on the first payment? Explain in words, no calculations necessary.

7. Suppose a subprime asset-backed security has a collateral of $600 million and has a senior tranche of $400 million, a subordinated tranche 1 of $120 million, and a subordinated tranche 2 of $70 million. What is the overcollateralization of this structure? Explain.

8. Now suppose that the subprime crisis hits and fully $100 million of losses due to defaults occur. What are the losses for each of the three tranches?

9. Log onto the Board of Governors web site, and read about its new term auction facility: http://www.federalreserve.gov/monetarypolicy/files/TAFfaqs.pdf Write a couple lines explaining what it is and what relevance it has to the subprime crisis.