

RE 310 – Principles of Real Estate
How Do You Finance Real Estate?
Practice Homework Problems

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- 1) Explain briefly the difference between the primary mortgage market and the secondary mortgage market.
- 2) George borrowed \$400,000 from Acme Life Insurance Company to purchase a small office building downtown. In this transaction, who is the *mortgagor* and who is the *mortgagee*?
- 3) Explain what it means to purchase a property subject to an existing mortgage. How does this differ from assuming a mortgage?
- 4) Explain briefly a borrower's *equitable* and *statutory redemption rights*. When can each right be exercised?
- 5) George is purchasing Harold's property using a *contract for deed*. Explain briefly what this means.
- 6) What is the monthly payment on a \$120,000, 30-year, fixed-rate mortgage at 5.50 percent interest?
- 7) Consider a \$1,200,000, five-year balloon mortgage amortized over 20 years at 6.25 percent interest.
 - a) What is the required monthly payment on this mortgage?
 - b) What is the annual debt service on this mortgage?
 - c) What will be the balloon payment at the end of the fifth year?
- 8) Consider a \$1.2 million mortgage with a 20-year term, monthly payments, and a 7.25% interest rate.
 - a) What is the required monthly payment on this mortgage?
 - b) What is the annual debt service?
- 9) George is purchasing a property for \$450,000. The professional appraisal on this property valued it at \$430,000. Suppose that George has \$90,000 available for a down payment and intends to obtain a mortgage for the rest of the funds he needs.
 - a) If George is able to borrow all the rest of the fund he needs, what will be his loan-to-value (LTV) ratio?
 - b) If the lender requires a maximum LTV ratio of 80 percent, what is the most George be able to borrow against this property?
- 10) Consider a \$150,000, 7.5%, fixed-rate mortgage.
 - a) What is the monthly payment on this mortgage is the term of the loan is 30 years?
 - b) How does the monthly payment change if the term of the mortgage is 15 years?

- c) For each of these terms (15 and 30 years), what will be the outstanding principal balance at the end of 10 years?
- 11) Marilyn wants to purchase a \$125,000 house and has \$15,000 for a down payment. Her mortgage company is offering her a 7.5%, 30-year fixed-rate mortgage with monthly payments and 2 points.
- What is Marilyn's loan-to-value (LTV) ratio? Given this LTV ratio, will she typically be required to purchase mortgage insurance? Why?
 - What will be the required monthly payment on this mortgage?
 - What principal balance will be remaining on this loan at the end of 5 years?
- 12) You have just applied for a \$100,000 30-year loan with an 8.5% interest rate and monthly payments. Annual property taxes are expected to be \$2,000 per year. Hazard insurance will cost \$400 per year. Your monthly car payment is \$400, which will continue for three years. Your monthly gross income is \$5,000.
- Calculate the monthly payment of principal and interest (PI).
 - Calculate monthly PITI (principal, interest, taxes, and insurance).
 - Calculate the housing expense (front-end) ratio.
 - Calculate the debt (back-end) ratio.
- 13) You have just applied for a \$100,000, 30-year loan with an 8.5 percent interest rate and monthly payments. Annual property taxes are expected to be \$2,000 per year. Hazard insurance will cost \$400 per year. Your monthly car payment is \$400, which will continue for three years, and your minimum monthly payment on your credit cards is \$150. Your monthly gross income is \$4,000.
- Calculate the monthly payment of principal and interest (PI).
 - Calculate monthly PITI (principal, interest, taxes, and insurance).
 - Calculate the housing expense (front-end) ratio. Do you meet the standard conventional mortgage underwriting guideline for this ratio?
 - Calculate the debt (back-end) ratio.
- 14) Consider a \$225,000 mortgage.
- If the lender charges two points to originate this loan, how much must the borrower pay in up-front costs?
 - Suppose instead that the lender charges 1.5 points and \$1,500 in miscellaneous loan charges. How much must the borrower pay in this case?
- 15) Jane is looking for an 80% LTV mortgage to purchase a \$180,000 home. She has been offered a 15-year, fixed rate loan at 7.75% interest with 2 discount points and \$1,500 in other miscellaneous closing costs. How much will Jane pay for this loan at closing? How large will Jane's monthly payments be? Under what circumstances might Jane prefer a loan with an 8.25% interest rate and 1 discount point?

- 16) City mortgage offers a 1-year ARM indexed to the 1-year constant maturity treasury security with a 2% margin. This loan has caps of 2% per year and 6% lifetime.

Using this information, complete the empty cells in the following table:

Year	1-year Treasury Rate	Fully-Indexed (Composite) Mortgage Rate	Contract Mortgage Rate
0	5.50%		5.75%
1	6.00%		
2	5.75%		
3	3.50%		

- 17) City mortgage offers a one-year ARM indexed to the one-year constant maturity treasury security with a 3 percent margin. This loan has caps of 2 percent per year and 4 percent lifetime.

Using this information, complete the empty cells in the following table:

Year	1-year Treasury Rate	Fully-Indexed Mortgage Rate	Contract Mortgage Rate
0	4.50%		5.25%
1	5.00%		
2	4.50%		
3	6.75%		

- 18) Consider a \$300,000, one-year ARM with an initial interest rate of 4.00 percent and payments amortized over 30 years. The ARM is indexed to the one-year constant maturity treasury security with a 2.5 percent margin and 2-6 caps (2 percent per year and 6 percent lifetime).

- What is the initial monthly payment on this mortgage?
- If the one-year treasury security rate is 3.75 percent at the first adjustment date, what will be the new contract rate on the mortgage?
- What will be the new monthly payment on this mortgage?

- 19) Consider a commercial property worth \$3.4 million which generates annual net operating income (NOI) of \$350,000. Financing is available with a 75 percent LTV ratio at 6.75 percent amortized over 15 years.
- a) How large can the mortgage loan be on this property based on the lender's LTV ratio guideline?
 - b) What is the required annual debt service on this mortgage?
 - c) What is the debt coverage ratio (DCR) on this loan? If the lender requires a minimum DCR of 1.25, does this loan meet this underwriting guideline?