

**Math 1300 Fall 2013**  
**Wednesday August 28, 2013**  
**Exercises**

1. You buy a house for \$370,000. You put \$70,000 down and finance the rest at 6.3% compounded monthly for 25 years.

(a) What is your monthly payment?

(b) How much do you pay for the house in total?

(c) How much interest do you pay in total?

(d) How much do you still owe after 23 years?

(e) How much do you still owe after 24 years?

(f) How much interest did you pay in the 24th year?

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2. You take out a loan of \$21,281.27 for 7 years at 8% compounded quarterly with a payment of \$1000 per quarter year.
- (a) What is your unpaid balance after 5 years?
  - (b) How much interest do you pay in the fifth year?
  - (c) How much of your first payment goes towards paying off the principal?
  - (d) How much total interest do you pay on the loan?
  - (e) Prepare an amortization schedule for the first 4 months.

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3. In May 2012, Ford offered a choice between a 1.9% loan for 36 months or \$1000 cash back on the purchase of a \$28,000 Taurus.

(a) If you take out the loan, what is your monthly payment?

(b) If you take the \$1000 cash back offer, and finance the remainder of the car through your local banks at 6% interest compounded monthly for three years, what will your monthly payment be?

(c) Which choice is cheaper for you?

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4. According to an article in the New York Times on August 9, 2008, economists were predicting that the average interest rate for a 30 year mortgage would increase from 6.7% to 7.1% during the next year, and that home prices would decline by 9% during the same period. In August 2008, a family was considering buying a \$400,000 home, by making a 20% down payment, and financing the rest. What would their monthly payment be if they closed in August 2008? In August 2009?

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5. You are considering buying a condominium as a rental property investment. By your estimates, you can charge rent of about \$1500 a month for your unit, and taxes, insurance and maintenance costs will total about \$300 a month. If interest rates are 4.8% compounded monthly, what is the maximum price the condominium can be, so that you can still cover your costs every month?

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6. You buy a tract of land for \$1 million, and assume a 25 year mortgage at 4.2% interest compounded monthly.
- (a) What is your monthly payment?
- (b) Suppose at the end of 5 years, you refinance the outstanding balance by taking out a 10 year loan. What is your monthly payment now?
- (c) Suppose that after another 5 years, you decide to pay off the outstanding balance. How large is your payment?