Math 132M Business Mathematics Topic: Loans

**1.** You can afford a $1350 per month mortgage payment. You've found a 30 year loan at 8% interest.  
  
a) How big of a loan can you afford? $  
  
b) How much total money will you pay the loan company? $  
  
c) How much of that money is interest? $

**2.** You want to buy a $18,000 car. The company is offering a 2% interest rate for 60 months (5 years). What will your monthly payments be?  
  
$

**3.** You want to buy a $223,000 home. You plan to pay 5% as a down payment, and take out a 30 year loan for the rest.  
  
a) How much is the loan amount going to be? $  
  
b) What will your monthly payments be if the interest rate is 5%? $  
  
c) What will your monthly payments be if the interest rate is 6%? $

**4.** You have $5,000 on a credit card that charges a 17% interest rate. If you want to pay off the credit card in 4 years, how much will you need to pay each month (assuming you don't charge anything new to the card)?  
  
$ each month

**5.** You have taken a loan of $51,000.00 for 20 years at 3.3% compounded quarterly. Fill in the table below: (Round all answers to 2 decimal places.)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Payment number | Payment amount | Principal Amount | Interest | Balance |
| 0) |  |  |  | $51,000.00 |
| 1) | $ | $ | $ | $ |
| 2) |  | $ | $ | $ |
| 3) |  | $ | $ | $ |

**6.** You are considering taking out a loan of $6,000.00 that will be paid back monthly over 2 years at 6.8% interest as a Rule of 78 loan. What is the interest on the loan? How much of the interest is paid after 10 payments?  
  
The total interest is $ . After 10 payments interest paid is $

**7.** An executive is going to purchase a vacation property for investment purposes. She needs to borrow $105,000.00 for 29 years at 6.3% compounded monthly, and will make monthly payments of $657.55. (Round all answers to dollars and cents.)  
  
What is the unpaid balance after 13 months? $  
  
During this time period, how much interest did she pay? $

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**Solutions**

1. 183,982.72 ~ 486,000 ~ 302,017.28
2. 315.50
3. 211,850 ~ 1,137.26 ~ 1,270.15
4. 144.28
5. $873.38 ~ $452.63 ~ $420.75 ~ $50,547.37 ~ $456.36 ~ $417.02 ~ $50,091.01 ~ $460.13 ~ $413.25 ~ $49,630.88

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
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| 2) |  | $456.36 | $417.02 | $50,091.01 |
| 3) |  | $460.13 | $413.25 | $49,630.88 |

1. $816.00 ~ $530.00
2. $103,572.97 ~  
   Payments = 13\*657.55=8548.15  
   Principal = 105000-103572.97=1427.03  
   8548.15-1427.03=$7,121.12

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