Take out a loan (e.g., for a home, car, etc.) and the lender charges interest.

You pay back the loan with _____ payments _____ for the entire length of time of the loan.

This process of repayment is called _____ .

Essentially the bank has an _____ with regular payments _____ .

i.e. The loan amount is the _____ of the annuity. We already have a formula for that:

Solve for the payment amount R:

where

R is the

A is the

$n = mt$ is the number of pay periods

$i = \dfrac{r}{m}$ is the interest rate for the period

Ex Sally buys a home for $180,000 and make a down payment of $36,000. She takes out a loan for the remaining amount and amortizes it with monthly payments over the next 30 years. If the interest rate is 4.8% compounded monthly,

(a). Find the size of the monthly payments.

(b). Find the total amount of the payments she made.

(c). Find the total interest paid.

Ex You have $25,000 for a down payment and you can afford $1000 in monthly payments. What is the most expensive home you can buy if you take out a loan for 15 years at 5.6% interest compounded monthly?

Amortization Schedule:

Period	Payment	Interest	Balance Reduction	Unpaid Balance

Ex Construct an amortization table for a loan of $12,000 with 8% interest repaid in 6 equal annual payments.

Period	Payment	Interest	Balance Reduction	Unpaid Balance
				12000
1	2595.78			
2	2595.78			
3	2595.78			
4	2595.78			
5	2595.78			
6	2595.78			
Total				

Ex Construct an amortization table for a loan of $20,000 repaid in 2 years compounded semiannually.

Period	Payment	Interest	Balance Reduction	Unpaid Balance
				20000
1				
2				
3				
4				
Total				

Homework:

Section 6.5, p. 409: #1, 5, 7, 17, 19, 21, 9, 11