

## Amortized Loans

### Objectives:

- Calculate the monthly payment for a simple interest amortized loan.
- Calculate the total interest for a simple interest amortized loans.
- Create an amortization schedule for a simple interest amortized loan.
- Calculate monthly payments that will produce a given future value.

### Suggested Problems:

page 352:  
 problems 3, 5, 7, 9, 13, 15,  
 16, 17a/b, 18, 21, 25, 33, 34

### Vocabulary:

- amortized loan
- simple interest amortized loan
- amortization schedule
- unpaid balance

### Formulas:

Simple Interest Amortized Loan Formula:

Unpaid Balance Formula

### Amortization Schedule Steps

- Find the interest on amount use - Use the simple interest formula.
  - Principal portion is payment minus interest portion.
  - New balance is previous balance minus principal portion.
- for the last period
- Principal portion is previous balance.
  - Total payment is sum of principal portion and interest portion.

Payment Number	Principal Portion	Interest Portion	Total Payment	Balance
0	-----	-----	-----	loan amount
first through next-to-last	total payment minus interest portion	simple interest on previous balance $I = Prt$	use simple interest amortized loan formula	previous balance minus this payment's principal portion
last	previous balance	simple interest on previous balance $I = Prt$	principal portion plus interest portion	\$0.00

Possible Classroom Examples:

Shirley Trembly bought a house for \$187,600. She put 20% down and obtained a simple interest amortized loan for the balance at  $6\frac{3}{8}\%$  for 30 years.

- a. Find her monthly payment.
- b. Find the total interest.
- c. Prepare an amortization schedule for the first two months of the loan.
- d. Most lenders will approve a home loan only if the total of all the borrower's monthly payments, including the home loan payment, is no more than 38% of the borrower's monthly income. How much must Ms. Trembly make in order to qualify for the loan?

Barry wood wants to buy a used car that costs \$4000. He has two possible loans in mind. One loan is through the car dealer: it is a 3-year add-on interest loan at 6% and requires a down payment of \$300. The second loan is through his credit union; it is a 3-year simple interest amortized loan at 9.5% and requires a 10% down payment.

- a. Find the monthly payment for each loan.
- b. Find the total interest paid for each loan.
- c. Which loan should Barry choose? Why?

Some lenders are now offering 15-year home loans. Investigate the effect of the term on home loans by finding the monthly payment and total interest for a loan of \$100,000 at 10% for the following terms.

- a. 30 years
- b. 15 years