

## Lesson Four: Basic Loans

### GOALS:

- Determine, using technology, the total cost of a loan in various contextual situations.
- Solve for different variables, using technology, in a context problem involving loans.

Providing loans is one of the main tasks for financial institutions such as banks and credit unions. These institutions provide loans for a variety of reasons and they will ask you why you need the loan when you apply for one. These institutions also have the right to refuse you a loan.

Different banks have different rates for different types of loans. If you are looking for a loan the best thing you can do is shop around. Financial institutions are in direct competition to give you a loan so you can often negotiate with them to get a lower interest rate.

When you need to borrow money, you take out a loan by entering into a contract with the financial institution. You agree to pay the money back at a certain interest rate over a certain number of payments.

Many of the terms we learned in the investment section will be used again when we discuss loans. However, this time we are paying interest to the bank and not receiving it. The amount of money borrowed is referred to as the principal and the length of the loan is referred to as the term of the loan.

We can use TVM solver on the TI-84 to solve many financial problems relating to loans.

### Example 1 PV

You borrow \$7500 to take your family to Disneyland. The loan has an interest rate of 6.5%, compounded quarterly. You want to pay off the loan in two years using bi-weekly payments.

- $CY = 4$  a) Calculate the bi-weekly payment.  
 b) Determine the total amount that will be paid back to the bank.  
 c) Calculate the amount of interest paid over the life of the loan.

a)  $\rightarrow$  \$153.92

$N = 2 \times 26$

$I = 6.5$

$PV = 7500$

$*PMT = -153.92$

$FV = 0$

$P/Y = 26$

$C/Y = 4$

B) TOTAL AMOUNT  $\overset{I}{}$   
 $\text{Biweekly payments} \times \text{years} \times \text{Biweekly payments/year}$   
 $= 153.92 \times 2 \times 26$   
 $= \$8003.84$

c) TOTAL INTEREST  $\approx$  TOTAL AMOUNT - LOAN  
 $8003.84 - 7500$   
 Interest  $= \$503.84$