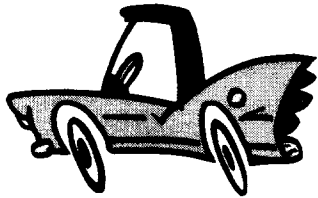


Have I Got a Deal For You!

Compound Interest Buying a Car



Standards: Problem Solving, Communication, Reasoning, Connections, Algebra, and Functions

Materials: CFX-9850G or CFX-9850Ga PLUS, Sunday Auto Classifieds

Calculator Menus: RUN and TVM

Check out the prices of cars in Sunday's automobile classified advertisements.

To buy a car, you will most likely need to get a loan. This activity will assist in determining the car that best suits your budget.

To pay the monthly loan installments on your car, you will need a job. How many hours per week are you willing to work? **A.** _____

Let's assume you make \$6 per hour. How much money will you make each week? **B.** _____ Every 4 weeks **C.** _____

Multiply your 4 week income by 0.75. This product will be your approximate take home pay after taxes are taken out of your paycheck. (This is a rough estimate). **D.** _____

Now you should have a good guess at your take home pay for a single month.

Find the price of one used and one new vehicle in the classified ads. What is the year, make (brand), model, and price of the new car you chose? **E.**

Enter the TVM Menu and press F2 for the compound interest screen.

For a new car, you should be able to get a 5 year loan. A good interest rate at the time this book was written was approximately 8% per year. In the compound interest menu, enter:

- n = 5 x 12 (5 years x 12 months per year), EXE
- I% = 8, EXE
- PV = price of your car, EXE
- PMT = 0, EXE
- FV = 0 (the future value or balance at the end of the loan should be 0 dollars), EXE
- P/Y = 12 (you will make 12 payments per year), EXE
- C/Y = 12 (the bank will compound the interest on the loan 12 times per year or once a month), EXE

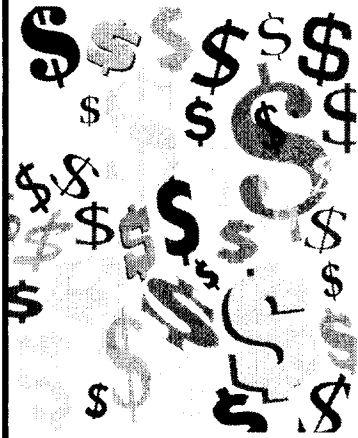
Since you want to determine your payments per month, press F4 (PMT). Your payment will be a negative value since you are paying the bank out of your pocket. What will be your monthly payment for your new car? **F.**

Variables Used in the Compound Interest Menu

- n = number of compound periods
- I = annual interest rate
- PV = Present Value
Loan amount or Initial Investment
- PMT = payment of each installment
- FV = Future value principal plus interest for investment and 0 for ending loan amount
- P/Y = Payments per year
- C/Y = Compounds per year

PAST DUE!

Have I Got a Deal For You!



Finding the Sum of the Interest of a Loan

In the TVM menu:
 Once you have found the monthly payment of the loan by pressing F3 (PMT),
 Press F4 (AMT)
 Enter 1 for PM1
 Enter number of months of loan for PM2
 Press F4 (Σ INT)

Just For Giggles

What is the impact of switch ing the payment from the beginning of the month to the end of the month. To do this:

Press Shift key
 Menu key
 F1 (BGN)
 EXIT key
 Redo the calculations.

How much money does that leave you at the end of the month? **G.**

Will you have enough money to support yourself for the month? Do not forget gas and insurance for the car!

Look at the cost of the used car. The interest rate for a used car is usually greater than a new car. Why is this the case? **H.**

Also, most banks prefer to give shorter term loans on used cars. For this scenerio, you will use a 3 year loan. While in the compound interest screen, enter:

- n = 3 x 12 (3 years x 12 months per year), EXE
- I% = 12, EXE
- PV = price of your used car, EXE
- PMT = 0, EXE
- FV = 0 (the future value or balance at the end of the loan should be 0 dollars), EXE
- P/Y = 12 (you will make 12 payments per year), EXE
- C/Y = 12 (the bank will compound the interest on the loan 12 time per year or once a month), EXE

Determine your monthly payments by pressing F4 (PMT). **I.**

How much money does that leave you with at the end of the month? **J.**

What is a better deal for you and why? **K.**

Was your decision solely based on monetary reasons? Why or why not? **L.**

With the payment still on the screen, press F4 (AMT). This will take you to the amortization screen similar to Figure 1. Notice that the menus at the bottem of the screen are different than the ones in the compound interest screen.

How much interest do you think you will be paying over the life of the 3 year loan for the used car? **M.** _____

Enter 1 in PM1 and 36 in PM2. 1 is the first month and 36 is the last month. Press F4 (Σ INT) to find the total interest you will pay for this car.

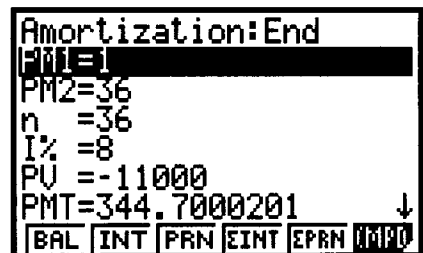
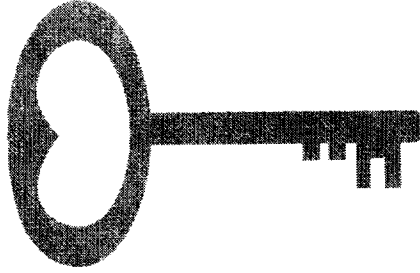


Figure 1

Was your guess in **M** close? How much money will you end up paying for this car? **N.**

Repeat this process for the new car. How much money will you end up paying for your new car? **O.**

Solution Key



Have I Got a Deal For You!

A. - O. Answers will vary.