

## Group Project #1 — Car Leasing

(worth 30 points)

Leasing a car is like renting in that the consumer makes payments for use of a car, but does not own the car. Car leasing is very popular these days, but many pitfalls await the unsophisticated. In this project you will learn to estimate the “bottom line lease” monthly payment, which is the best deal for which a consumer could hope assuming a given term, capitalized cost, residual value, and money factor (see below for a definition of these terms). Leasing deals vary widely, so the computations here are just a sample of the most common elements of these deals. We ignore taxes, downpayments, and other fees or factory subsidies.

### GLOSSARY OF SOME OF AUTO LEASING’S MOST PROMINENT TERMS:

<b>term:</b>	the length, in months, you lease the car.
<b>capitalized cost:</b>	the selling price of the car.
<b>residual value:</b>	the predicted value of the vehicle at the end of the lease term. Sometimes expressed as a percentage of the MSRP (manufacturer’s suggested retail price).
<b>money factor:</b>	the factor that determines the finance charge. It is determined by the “interest rate.” If the “interest rate” is expressed as a percentage, convert the percentage to the money factor by dividing the “interest rate” by 24 (yes, it’s 24 regardless of the term of the lease). For example, a 6 percent (.06) “interest rate” converts to a $0.06/24 = 0.0025$ money factor.

### SAMPLE AUTO LEASE COMPUTATION:

Suppose that we wish to lease a car with a capitalized cost of \$18,000 for 36 months at a 9% “interest rate” and residual value of 50%. Ignoring taxes and other fees, what is the estimated “bottom line lease” monthly payment?

*Answer:* First we must compute the amount of car that is used during the lease. This is the capitalized cost minus the value of the car at the end of the lease:

$$\$18,000 - (0.50)(\$18,000) = \$9,000$$

This value is equally divided into the number of months of the lease, in this case 36.

$$\frac{\$9000}{36} = \$250$$

Remember we have not yet added the interest. The interest is computed in a strange way. First let’s compute the money factor:  $(0.09)/24 = 0.00375$ .

To get the interest, add the capitalized cost of the car to the residual value and multiply this by the money factor.

$$(\$18,000 + \$9000)(0.00375) = \$101.25$$

Finally, add the interest figure to the monthly figure above to get the estimated “bottom line lease” monthly payment:  $\$101.25 + \$250 = \$351.25$ .

(over please)

## QUESTIONS

1. Suppose that we wish to lease a car with a capitalized cost of \$24,000 for 36 months at a 9% “interest rate” and residual value of 73%. Ignoring taxes and other fees, what is the estimated “bottom line lease” monthly payment?
2. Compare the lease from question (1) with the sample lease on the previous page. Why is the more expensive car less per month? This explains why car leasing is popular.
3. Suppose that we wish to lease a car with a capitalized cost of \$27,000 for 48 months at a 5% “interest rate” and residual value of 60%. Ignoring taxes and other fees, what is the estimated “bottom line lease” monthly payment?
4. Compute the total amount of interest paid during the entire duration of the lease in question (3).
5. The 5% “interest rate” quoted in the lease in question (4) is not the real interest rate. To get a better sense of the real rate, consider that the person who leases the auto in question (3) uses \$10,800 worth of the car during the term of the lease. At what annual interest rate compounded monthly would this amount of money have to be invested for 48 months to earn the same interest as given by the answer to question (4)? (*Hint: the future value is equal to the \$10,800 plus the amount of interest found in question (4).*)
6. How many months must \$10,800 be invested at 5% compounded monthly in order to earn the total amount of interest found in question (4)? (*Remember: as in question (5), the future value is equal to the \$10,800 plus the amount of interest found in question (4).*)

## REMINDER:

Your project report must be neatly **typed** and begin with the Cover Sheet containing the name of each group member (with facilitator and recorder identified) and their contributions, and your course section number.

The body of the report should be written in **complete sentences**, augmented by charts and/or tables (these may be hand drawn), that **explain how you reached your conclusions and what those conclusions are.**

(over please)