8.6 Cars

# Objective 1: Compute the monthly payment and interest costs for a car loan

Most car loans are **installment loans** which means the purchaser can use the car immediately, before it is fully paid for. A loan that is paid off with a fixed number of regular payments is called a **fixed** **installment loan.** The disadvantage of installment loans is that interest can add a substantial cost to the purchase price.

Payments for an installment loan are calculated by considering two things. First, the lender expects a certain amount of money by the end of the loan, a compound interest problem. Second, the purchaser pays a fixed monthly amount, or **payment (PMT)**, which works like an annuity to accrue the same total amount of money. When these are set equal to each other, the monthly payment and interest can be calculated.

**COMPUTING THE MONTHLY PAYMENTS AND INTEREST FOR A CAR LOAN**

Lender Expectations: 

Purchaser Payments (annuity): 

Set these equal to each other and solve for PMT to find the regular payment amount for an installment loan:



where *P* is the price of the car, *r* is theannual interest rate, *t* is the number ofyears of the loan, and *n* is the number of payments per year.

The total interest for the loan is calculated by subtracting the purchase price from the total of all loan payments.



# Objective 2: Understand the types of leasing contracts

**Leasing** is the practice of paying a specified amount of money over a specified time for the use of a product. Leasing is essentially a long-term rental agreement. With a **closed-end car lease,** fixed monthly payments are based on estimated usage. When the lease ends, the lessee returns the car and pays any mileage surcharges.

With an **open-end lease** fixed monthly payments are based on the car’s **residual value** which is the estimated resale value of the car at the end of the lease and is determined by the dealer. When the lease ends, the lessee returns the car and makes a payment based on its appraised value at that time compared to its residual value. If the appraised value is less than the residual value stated in the lease, the lessee pays all or a portion of the difference. If the appraised value is greater than or equal to the residual value, the lessee owes nothing and may receive a refund.

# Objective 3: Understand the pros and cons of leasing versus buying a car

Leasing a car offers both advantages and disadvantages compared to buying a car. The key point to remember is that when mileage penalties and other costs at the end of the leasing period are taken into consideration, leasing is almost always more expensive than financing a car.

| **ADVANTAGES OF LEASING** | **DISADVANTAGES OF LEASING** |
| --- | --- |
| * Leases require only a small down payment or no down payment at all. * Lease payments for a new car are lower than loan payments for the same car. Most people can lease a more expensive car than they would be able to buy. * When the lease ends, the car is returned to the dealer. The lessee has no concerns about selling the car. | * When the lease ends, the dealer owns the car. * Most lease agreements have mileage limits, often 12,000 – 15,000 miles per year. There are additional charges for exceeding the limit. * The lessee is responsible for keeping the car in perfect condition and is liable for any damage to the car. * Leasing does not cover maintenance. * There are penalties for ending the lease early. |

# Objective 4: Understand the different kinds of car insurance

Purchasing insurance is buying protection against loss associated with unexpected events. Different types of coverage are associated with auto insurance. The coverage required by nearly every state is **liability coverage** which applies to damage to others**.** **Bodily injury liability** covers the costs of lawsuits if someone else is injured or killed in an accident in which the insured is at fault. **Property damage liability** covers damage to other cars and property from negligent operation of the insured vehicle.

Two other types of insurance coverage pay for damage to the insured’s own property. **Collision coverage** pays for damage to the car in an accident. **Comprehensive coverage** pays for damages to the car from perils such as fire, theft, falling objects, acts of nature, and collision with an animal.

# Objective 5: Compare monthly payments on new and used cars

New cars **depreciate** or lose value as soon as they are driven off the lot. For many people used cars are a good option to escape some of this lost value. Typically, a used car from a dealership will cost less than a comparable new car, but financing may have a higher interest rate or a shorter term. Calculate the monthly payment, total payments, and total interest to determine which of two cars is a better buy.

# Objective 6: Solve problems related to owning and operating a car

The cost of owning a car is not limited to the purchase price and **financing costs** such as loan interest. Other **ownership expenses** include insurance, license fees, registration fees and taxes. There are also **operating expenses** associated with driving the car. These include fuel, maintenance, tires, tolls, parking, and cleaning. These expenses all need to be considered when choosing a car.