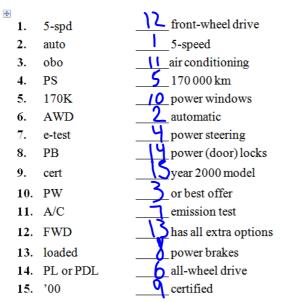<u>Worksheet 7-6: Buying a Car, Used or New</u>

Used cars are less expensive to buy and less expensive to insure. A good used car will cost a lot less than a new model of the same car. New cars can be bought or leased. Depending on your situation, there are advantages to buying or leasing. The initial costs for obtaining a new vehicle are usually greater than those for obtaining a used vehicle.

The following words or abbreviations are commonly seen in advertisements for vehicles. Match these words or abbreviations on the left to their most appropriate meanings on the right.

1.	5-spd	_12_	front-wheel drive
2.	auto	_1_	5-speed
3.	obo	_11_	air conditioning
4.	PS	_5_	170 000 km
5.	170K	_10_	power windows
6.	AWD	_2_	automatic
7.	e-test	_4_	power steering
8.	PB	_14_	power (door) locks
9.	cert	_15_	year 2000 model
10.	PW	_3_	or best offer
11.	A/C	_7_	emission test
12.	FWD	_13_	has all extra options
13.	loaded	_8_	power brakes
14.	PL or PDL	_6_	all-wheel drive
15.	'00	_9_	certified

2000 HONDA ACCORD LX, 37K, 4 Door, White w/tan leather interior, Cruise Control, Dual Airbag, A/C, PWR Steering, PWR Mirrors and Windows, FM/CD, Alarm System, $13500 OBO Contact : Marshall (555) 615-9859

Buying or leasing a new vehicle is a big expenditure, and often involves making a down payment. A down payment is the initial payment due upon the purchase or lease of an item, such as a car or a house. Leasing a new vehicle is basically entering into a long-term rental agreement which involves making a series of regular payments at equal intervals of time over the term of the agreement. You drive the car but you do not own it.

<u>Comparing Used Cars:</u>

1. Explain why three identical model vehicles of the same age, found in the classified advertisements of a local newspaper, could have three very different prices.

which involves making a series of regular payments at equal intervals of time over the term of the agreement. You drive the car but you do not own it.

<u>Comparing Used Cars:</u>

1. Explain why three identical model vehicles of the same age, found in the classified advertisements of a local newspaper, could have three very different prices.

They may have different conditions:
- mileage
- body
- mechanical

<u>Buying a New Vehicle:</u>

2. A local dealership is selling a new compact car for $17 995 plus taxes (5% GST and 8% PST). *Price* *13% HST*
   The dealership offers financing at 4.9% annual interest rate, compounded monthly, over four
   years. You have saved $3000 for a down payment. You will finance the rest. *100% + 13%* *113%*

(a) What is the after-tax cost or total cost of the car?

Total cost = Selling price + Selling price × 0.13	or	Total cost = Selling price × 1.13

$$\text{Total cost} = 17995 \times 1.13$$
$$= \$20334.35$$

(b) What is the amount to be financed or principal of the car loan?

$$\$20334.35 - 3000$$
$$= \$17334.35$$

(c) What will be your monthly payment for financing the car?

$$PMT = \frac{Pi}{1-(1+i)^{-n}}$$

$$P = 17334.35 \quad i = \frac{0.049}{12} \quad n = 4 \times 12 = 48$$

$$PMT = \frac{17334.35\left(\frac{0.049}{.12}\right)}{\left[1-\left(1+\frac{0.049}{12}\right)^{-48}\right]}$$

$$= \$398.41$$

(d) What is the total amount paid for the car?

Total amount paid = Down payment + Loan repayment (Sum of monthly payments)

$$\text{Total amount} = 3000 + 398.41 \times 48$$
$$= \$22123.68$$

(e) What is the total interest paid for financing the car?

$$\text{Total Interest} = 22123.68 - 20334.35$$
$$= \$1789.33$$

Leasing a New Vehicle:

3. To lease a new car selling for $24 000, a customer agrees to pay $1000 down payment and to make 48 monthly payment of $369.

(a) Calculate the total cost of leasing the vehicle.

Total Cost of Leasing = Down payment + Monthly payments (Sum of monthly payments)

Total cost of Leasing = 1000 + 369 × 48
= $18712

(b) Calculate the average cost per month over the term of the lease. 48 months

Average cost = 18712 ÷ 48
= $389.83

Buying a Used Vehicle:

4. Vehicles purchased from a private seller (e.g. your neighbour) are not subject to GST. Only PST is charged when you change the vehicle's ownership papers. A used car is advertised for sale in a local newspaper for $4500. HST

(a) Determine the total cost of the vehicle with 8% PST. 13% HST

Total cost = Selling price + Selling price × 0.08 [0.13]　or　Total cost = Selling price × 1.08 [1.13]

Total cost = 4500 × 1.13
= $5085

(b) Determine the monthly payment for a $5000 loan at 8% annual interest, compounded monthly for two years. $Y = 2$

$P = 5000$　$i = \dfrac{0.08}{12}$　$n = 2 \times 12 = 24$　$PMT = \dfrac{Pi}{1-(1+i)^{-n}}$

$$PMT = \frac{5000\left(\dfrac{0.08}{12}\right)}{\left[1-\left(1+\dfrac{0.08}{12}\right)^{-24}\right]}$$

$$= \$226.14$$

5. Calculate the after-tax cost of the following vehicles available at a local car dealership.

(a) a two-year-old minivan selling for $22 995   (b) a new sports car selling for $36 250

6. Calculate the after-tax cost of the following vehicles purchased from a private seller.

(a) a nine-year-old compact car for $2500   (b) a 12-year-old mid-size diesel car for $4200

7. To finance a new compact car, $15 000 is borrowed for five years at 9.25% annual interest, compounded monthly.

(a) Determine the monthly payment.

$P =$ $i =$ $n =$

$$PMT = \frac{Pi}{1-(1+i)^{-n}}$$

(b) Calculate the total amount paid to the financial institution for the car loan.

(c) Calculate the total amount of interest paid over the term of the loan.

8. To finance a used car, $8500 is borrowed for four years at 8.5% annual interest, compounded monthly.

(a) Determine the monthly payment.

$P =$ $i =$ $n =$

$$PMT = \frac{Pi}{1-(1+i)^{-n}}$$

(b) Calculate the total amount paid to the financial institution for the car loan.

(c) Calculate the total amount of interest paid over the term of the loan.

9. Calculate the total cost of each new car lease.

(a) a luxury sedan worth $72 000 leasing for $7500 down and 39 monthly payments of $ 899

(b) a car worth $18 000 leasing for $1000 down plus 36 monthly payments of $299

10. To lease a new car worth $30 000, a customer agrees to pay a $1000 down payment and 48 monthly payments of $525.

(a) Calculate the total cost of leasing the vehicle.

(b) Calculate the average cost per month over the term of the lease.

(c) After 48 months, the customer will have to return the vehicle to the dealership. What options do you think that the customer would have at that point?

(d) If instead, the customer buys the car with $1000 down and finances the rest of the cost at 6% annual interest, compounded monthly for four years, determine the total amount paid for the car.