



# MATH




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**Random Trivia Fact:** The average car has 30000 parts.



Minds On




- 1) Homework questions
- 2) Minds On - should you lease or buy
  - not an easy answer
- 3) 9.5 Operate a Vehicle
  - insurance
  - Fuel Consumption
  - Depreciation
- 4) Text Practice
- 5) Putting it together - buy or lease




Video - Cars Lease or Buy

Video - should you lease or buy your next car

Dec 4-3:02 PM



# MINDS ON



**Minds ON: Videos: Buying or Leasing a Vehicle**

After watching the videos comment on whether or not YOU think it is worth it to lease rather than buy.

(Rent vs own)

- usually, the longer you keep the car buying will be better
- personal choice not based solely on money

Jan 11-2:33 PM

**PAY ATTENTION**

### 9.5 Operate a Vehicle

Once you obtain a vehicle of your own, the expenses really start to mount. You are now the principal driver so your insurance costs go up—sometimes they go way up! You drive more so your fuel costs go up. In addition, you are making payments on something that is losing value every day that you drive it.

**Insure a Vehicle**

Ralf is 19 and single, and he owns a seven-year-old mid-sized car. He called several insurance agents and the lowest quote he received was \$2620/year. There are two payment options: he can pay the insurance premium in full once a year, or he can make monthly payments of \$230.

- Calculate the annual cost if he chooses the monthly instalments.
- Calculate the difference between the two payment methods.
- Suggest reasons why Ralf might choose each option.

**Solution**

a) Total monthly payments =  $230 \times 12$   
= 2760

If Ralf pays monthly, then after a year he will have paid \$2760 for insurance.

b) Difference between payments =  $2760 - 2620$   
= 140

The difference between paying once and paying monthly is \$140.

c) Choosing the one-time annual payment is less expensive in the long run, but choosing the monthly payments allows Ralf to pay smaller amounts, which is more affordable.

Jan 11-2:33 PM

**PAY ATTENTION**

### Calculate Fuel Costs

DeVaughan's truck has a 76-L fuel tank and a fuel efficiency rating of 11.8 L/100 km.

- ~~Explain what the fuel efficiency rating on DeVaughan's truck means.~~
- How far can DeVaughan's truck travel on one tank of fuel?
- How much fuel would his truck use on a 450-km trip?
- ~~Explain how to determine the cost of the fuel for the trip in part c).~~

**Solution**

a) Under normal driving conditions, DeVaughan's truck will use approximately 11.8 L of gas to travel 100 km. A vehicle that uses less fuel to travel 100 km is more fuel-efficient.

b)  $\frac{11.8 \text{ L}}{100 \text{ km}} = \frac{76 \text{ L}}{\square \text{ km}}$  Use a proportion.  
 $\square = \frac{76 \times 100}{11.8}$   
 $\square \doteq 644.07$   
 DeVaughan's truck can travel approximately 644 km on one tank of gas.

c)  $\frac{11.8 \text{ L}}{100 \text{ km}} = \frac{\square \text{ L}}{450 \text{ km}}$   
 $\square = \frac{11.8 \times 450}{100}$   
 $\square \doteq 53.1$   
 DeVaughan's truck will use approximately 53 L of gas for the trip.

d) The cost of the fuel will be 53 times the current price of one litre of gas.


*Handwritten notes:*  
 b)  $\frac{11.8 \text{ L}}{100 \text{ km}} \times 76 \text{ L} = x$   
 $11.8x = 7600$   
 $\frac{11.8x}{11.8} = \frac{7600}{11.8}$   
 $x = 644.1 \text{ km}$   
 c)  $\frac{11.8 \text{ L}}{100 \text{ km}} = \frac{x}{450}$   
 $100x = 5310$   
 $x = 53.1$

Jan 11-2:40 PM

**PAW ATTENTION**

**Depreciation**  
 A new mid-sized vehicle sells for \$21 135. Marizia researched used cars of the same model and found the following information.

Age of Vehicle (years)	Average Selling Price (\$)
1	16 000
2	12 750
3	11 000
4	9 800



a) Calculate the depreciation of the vehicle during the first year, in dollars.  
 b) Calculate the depreciation after one year, as a percent of the new vehicle price.  
 c) Calculate the depreciation after four years, as a percent of the new vehicle price.

**Solution**

a) Depreciation = new car price - value after one year  
 $= 21\ 135 - 16\ 000$   
 $= 5135$   
 The vehicle depreciated by \$5135 in the first year.


b) Percent depreciation =  $\frac{\text{actual depreciation}}{\text{new car price}} \times 100$   
 $= \frac{5135}{21\ 135} \times 100$   
 $= 24.3$   
 $5135 \div 21\ 135 = 24.3$   
 The vehicle depreciated about 24% after the first year.

c) Actual depreciation =  $21\ 135 - 9800$   
 $= 11\ 335$   
 Percent depreciation =  $\frac{11\ 335}{21\ 135} \times 100$   
 $11\ 335 \div 21\ 135 = 53.6$   
 The vehicle depreciated about 54% after the fourth year.


*Car costs 30,000, depreciates 20% per year.*

30,000	- 6000	24000
24000	- 4800	19200

Jan 11-2:41 PM




# YOUR TURN




**Key Concepts**

- Fixed costs are expenses that remain the same from one month to the next; variable costs are expenses that vary in their amount or their frequency.
- Depreciation is the amount by which a vehicle loses value over time.
- One of the major expenses for drivers is insurance. This is especially true for young drivers.


HW Pg493# 1a, 3a-c, 4a-c, 7a, 8a, 13a



Jan 11-2:42 PM



# YOUR TURN



**Assignment - Leasing Vs Buying**

1) G\$ is deciding between LEASING and PURCHASING a JEEP Wrangler.

a) He is offered a lease of \$365 a month for a 4 year contract. How much will he spend on the JEEP by the end of the lease?

A new JEEP Wrangler sells for \$32,000 plus 13% tax. G\$ has saved \$4000 for the down payment and the car company charges 5.9% compounded monthly for 4 years leading to a payment of \$750 per month.

b) At the end of 4 years how much has G\$ spent on purchasing his JEEP?

c) The JEEP depreciates around 15% per year. At the end of 4 years what will be the value of the JEEP? (use the before tax price to start)

YEAR	Depreciation Amount	Value at End of Year
1		
2		
3		
4		

d) Based on the information from part b) and c) what was G\$'s net cost for the JEEP? (taking into account the value of his JEEP after 4 years).

e) Compare this with the amount spent on the JEEP for a LEASE. **What is the best payment method?**

9.5 Assignment
Page 1 of 1

Jan 14-10:03 AM

## Attachments

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9.0b types of investments.pptx

Cars Lease or Buy.wmv

Should you Lease or Buy your next car.wmv