Assignment #1 – Gas Guzzler

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**The Math:**

**Given:**

Gas tank full to start.

Starting odometer: 45,067 km

Ending odometer: 45,978 km

Fill up ($): $56

Fill up (l): 39.7 litres

**Constants:**

Miles/km = 0.621371

Gal/litre = 0.264172

**Questions:**

1. How many kilometers did I travel?

(end odometer) – (start odometer) = total distance travelled

45,978 km – 45,067 km = **911 km**

1. How many miles did I travel?

(total km) \* (miles/km) = total miles

911 km \* (0.621371miles/km) = **566.068981 miles**

-OR-

Rounded to **566 miles**

1. How many gallons of gas did I use?

(fill up(l)) \* (gal/litres) = total gallons

39.7 litres \* (0.264172gal/litre) **= 10.4876284 gallons**

-OR-

Rounded to **10 gallons**

1. How many miles per gallon did I get?

(total miles) / (total gallons) = miles per gallon (mpg)

566 miles / 10 gallons **= 56.6 mpg**

-OR-

Rounded to **57 mpg**

1. How much a kilometer did it cost me?

(fill up($)) / (total km) = cost per km ($)

$57 / 911km **= $ 0.06256861/km**

-OR-

Rounded to **$0.06/km**

**Pseudocode:**

1. Input - what did your odometer start at?
2. Input - what did your odometer end at?
3. Input - how many litres of fuel did you put in your car?
4. Input - how much did your fuel cost?
5. Calculate total km

End odo – start odo

1. Calculate total miles

Total km \* 0.621371 (set as constant)

1. Calculate total gallons

gas in (l) \* 0.264172 (set as constant)

1. Calculate miles per gallon

Total miles / total gallons [ROUND]

1. Calculate cost per kilometer

(Fuel cost / total km)

1. Print total km, total miles, total gallons, mpg, cost per km

**Code:**

#Program: Assignment 1 - Gas Guzzler

#Written By: Andrew McDonald (W0426368)

#Date Written: 29 Jan 2019

#Purpose: Interpret gas milage

#main routine

def main():

#Define constants

KMTOM = 0.621371 #kilometer to mile conversion

LTOGAL = 0.264172 #litre to gallon conversion

#print title

print('Assignment 1 - Gas Guzzler')

print()

#take all inputs

start\_odo = float(input('What was your starting odometer reading?'))

end\_odo = float(input('What was your final odometer reading?'))

fuel\_input = float(input('How many litres of fuel did you put in your car?'))

fuel\_cost = float(input('How much did your fuel cost?'))

print()

#calculate data

totalkm = round (end\_odo - start\_odo)

totalmile = round((totalkm \* KMTOM))

totalgal = round((fuel\_input \* LTOGAL))

mpg = round(totalmile / totalgal)

costperkm = ((fuel\_cost / totalkm))

#print outputs

print('Total kilometers traveled:', totalkm)

print('Total miles traveled:', totalmile)

print('Total gallons of fuel used:', totalgal)

print('Total miles per gallon:', mpg)

print('It cost you per kilometer', end=' ')

print('$', format(costperkm, ',.2f'))

#display end of program

print()

print('End of program')

#call the main

main()