Centre de formation générale des adultes

The ABCs of Car Insurance

A Learning Situation

MTH-4152-1
Data collection using a real-life situation

Background

As a consumer, you must, if you haven't already, take out car insurance. In this particular situation, you will learn about the discriminatory practices that affect the cost of insurance premiums. You will be required to analyze and interpret the variables that have an influence on the cost of insurance premiums. To do this, you will take on the role of an agent or an insurance broker.

Which clientele was targeted in the three awareness campaigns you watched (see box)?

_____
_____

Why was this particular clientele being targeted?

_____
_____

* All the statistics used in this learning situation were obtained from:
http://www.saaq.gouv.qc.ca/publications/nous/statistiques2011.pdf

Awareness Campaigns

Before starting this activity, click on the following links to Watch each of the three videos.

1- Teen Drunk Driving PSA

https://www.youtube.com/watch?v=y1R5q3iz5jU

2- Texting and Driving Crash

https://www.youtube.com/watch?v=ApnyKv1GuNI

3- Teen Driver Safety Tips:

https://www.youtube.com/watch?v=3M1BoKcAlYA

One in two Québec youth use their cell phones while driving, even though this practice has been banned for nearly 4 years now…

One way? Two way?

You are obliged to have car insurance that covers any damage that your vehicle causes to another vehicle or property.

Known as one way insurance, this insurance must provide for a minimum liability coverage of **$50,000.**

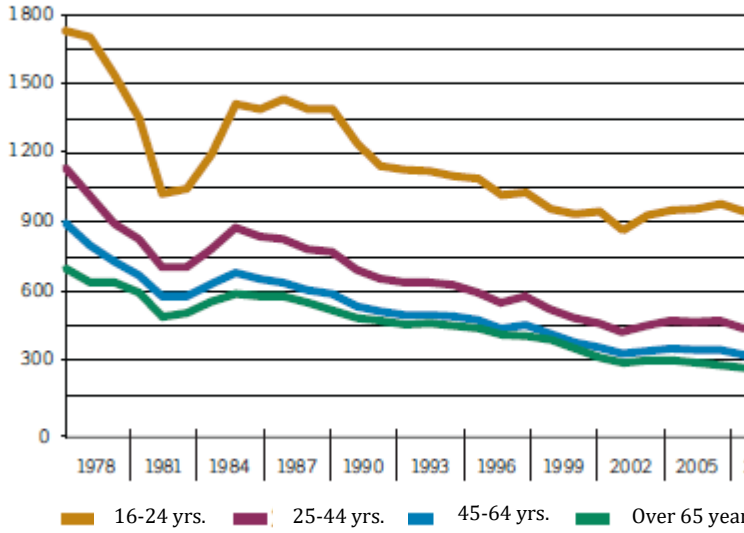
Depending on your budget and the value of your vehicle, it is also possible to insure your vehicle for damage, theft or vanadalism. This is known as two way insurance.

We often hear that the colour of a vehicle has an influence on the insurance premium. Is this true?

Exercise 1

Several **criteria** can influence car insurance premiums. Here is an example:

The Number of Drivers Involved in Accidents for 10,00 license holders, from 1978 to 2011



Source : http://www.saaq.gouv.qc.ca/publications/nous/statistiques2011.pdf

Which variables are correlated in this graph?

1) Independent variable
2) Dependent variable

What do you observe?

As a damage insurance agent or broker, who would you charge the most for their insurance premium: a 22-year-old student or a 36-year-old worker? Why?

Is there a link between the age of the driver and the number of accidents? What GENERALIZATION can you make based on this graph?

_____

_____

_____

_____

The table below shows the number of young people (16-24 years) with driving licences and the number of licences issued from 2000 to 2011.

Number of licence holders among 16-24 year olds and in the total population

Year	16-24 years	Total
2000	497 697	4 496 997
2001	494 180	4 545 461
2002	488 567	4 599 815
2003	483 670	4 655 612
2004	482 374	4 724 710
2005	477 798	4 777 429
2006	479 117	4 841 176
2007	486 222	4 909 380
2008	496 989	4 973 573
2009	509 369	5 027 848
2010	531 078	5 105 623
2011	528 618	5 156 353

Since 1978, the number of driving licence holders has increased at an average annual rate of 1.5% .

http://www.saaq.gouv.qc.ca/publications/nous/statistiques2011.pdf

What is the relationship between the year and the number of young people (16-24 years) with driving licences? Quantify this relationship.

What is the relationship between the year and the total number of driving licence holders? Quantify this relationship.

From 2000 to 2011, what is the relationship between the number of young people (16-24 years) with driving licences and the total number of driving licence holders? Quantify this relationship.

He nts aged between 17 and 23 years (all had clean

What percentage of driving licences were issued to young drivers in 2011?

According to Graph #1, what percentage (approximately) of young drivers were involved in accidents in 2011?

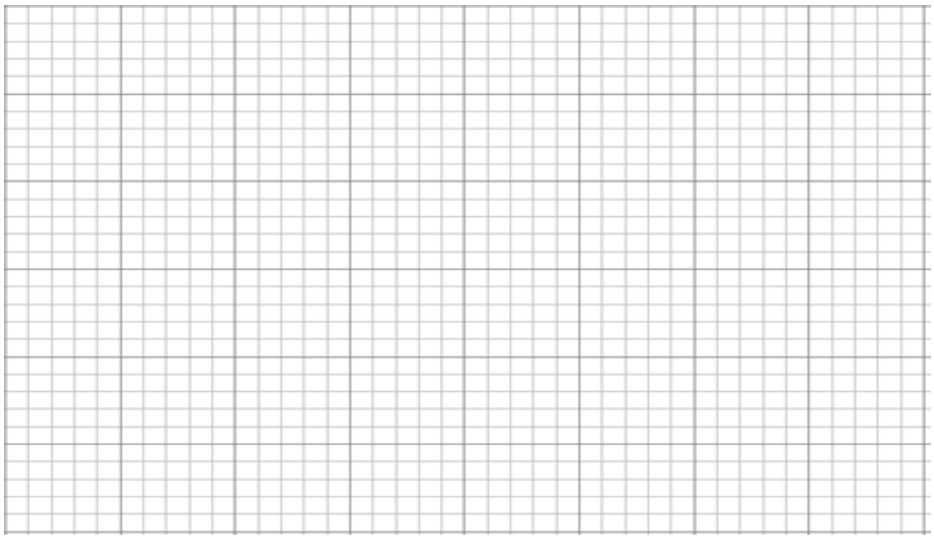
driving records and owned similar model vehicles) carried out between the October 22 and November 6, 2012 at an adult education centre in Alma, Québec.

Cost of the car insurance premium (one way) for students at an adult education centre

Age	Cost of the premium ($/year)
17	438
18	468
20	400
19	742
21	345
17	456
19	404
18	456
18	445
20	311
23	278
21	308
17	482

A car is stolen every 17 minutes in Québec…

Create a scatter plot from the data in the table above and find the relationship between the age of the driver and the cost of the insurance premium. Correctly identify the parts of the graph: title, identification of axes, units of measurements.



What could have skewed the results of this survey?

From the graph, find the relationship between the age of the driver and the premium paid. Quantify this relationship. How should you use the coordinate (19,742) when calculating this relationship? Find an explanation for this coordinate…

Would the graph have been the same if women had been surveyed? Explain your answer.

What method can be used to estimate the cost of a premium for a 30-year-old driver?

You have just demonstrated the relationship between the age of the insuree and the cost of the premium.

An insuree who uses his vehicle to make restaurant deliveries must pay a higher premium than someone who is only using his vehicle to drive to work…

Insurability criteria

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You may be asked several questions when the insurance premium for your vehicle is being calculated.

Certain questions will be about the driver whereas others will be about the vehicle.

Some history

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The public automobile insurance plan was implemented by Minister Lise Payette in **1978**. It covers compensation for Québec victims of road accidents, idemnity in the case of death and the repatriation of Québec casualties abroad.

Financed from an annual contribution, it is paid by all Québec drivers regardless of the class of driving permit held and the number of demerit points accumulated on their driving record.

• • •

The *Société de l'assurance automobile du Québec* (SAAQ) is a crown corporation that is responsible for licensing vehicles and drivers in the province and for providing insurance to all drivers, passengers, pedestrians, cyclists and motorcyclists in Québec, whether or not they are at fault for an accident on the road.

Exercise 2

Several students and teachers at your Centre own a car and so have insurance.

In the next part of this situational problem, you must prove whether or not a relationship exists between one of the insurability criteria (chosen by you) and the premium paid.

For example, the cost of the premium versus the number of claims.

Before starting, make a list of criteria related to:

The driver:

- _____
- _____
- _____
- _____
- _____

The vehicle:

- _____
- _____
- _____
- _____
- _____

Which criterion will you link to the premium?

_____

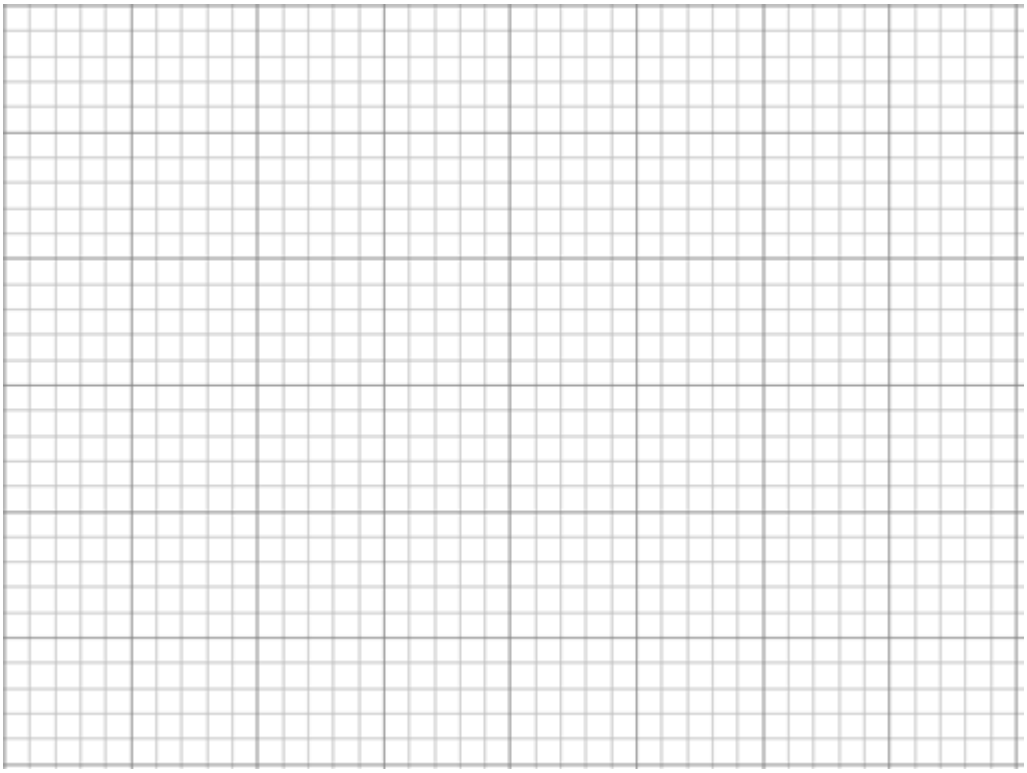
Your action plan must include, at a **minimum**:

- A collection of data (an existing one or one done by you)
- A scatter plot

Validate your plan with your teacher and *make a hypothesis* about the relationship that this activity will reveal…

Action Plan:

Hypothesis:



Were the results what you expected?

_____

_____

_____

Are your results realistic?

_____

_____

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