

Northview Collegiate

Unit 3 Assignment

Course Code: MDM4U

Name:

Date:



K/U:	T/I:	A:	C:
/10	/10	/10	/10

K/U

1.

- a) Every year, Canadians and Americans spend over \$8 billion on Halloween. Do you think this is a lot of money? Justify your response.
- b) In 2011, Apple Corporation's profit grew by almost \$19 000 000 000 from 2010. Do you think this is a large increase? Justify your response.

2.

Identify the type of bias and suggest how the same data could be researched without bias.

- a) Your teacher asks you to raise your hand if you understood the lesson.
- b) City council conducts a survey about the police force by asking everyone who comes to the next council meeting.
- c) The local news posts a poll on its website asking if climate change is real.
- d) An application to join a gym asks how much you like exercising.
- e) A store that sells hunting gear petitions to lower the cost of registering a gun.

T/I

For each of the survey questions, explain how the question could be improved. Then, rewrite it.

- a) Do you exercise daily and get enough sleep at night? ☐ Yes ☐ No
- b) The *Star Wars* saga is one of the best science fiction stories of all time. How do you feel about Disney taking over the franchise?
☐ Strongly agree ☐ Agree ☐ Don't know
☐ Disagree ☐ Strongly disagree
- c) Which is your favourite type of music?
☐ Rap ☐ Electronic ☐ Pop
- d) How do you feel about the following statement:
We should not reduce the number of recycling days in the school.
☐ Strongly agree ☐ Agree ☐ Don't know
☐ Disagree ☐ Strongly disagree

2.

A math department assigns the following weights for each category in its Advanced Functions course:

Knowledge: 25%

Thinking: 10%

Application: 15%

Culminating Project: 10%

Communication: 10%

Final Exam: 30%

Catherine's marks in the course so far are 87, 90, 76, 78, and 84 in each of the first five categories. She still needs to write the final exam.

- a) Determine the weighted mean for Catherine before writing her final exam.
- b) Is it possible for Catherine to receive a final mark of 90% in the course? Justify your answer.

A.

A consumers group recently tested 100 compact fluorescent light bulbs and recorded their lifetimes. The chart shows the results.

Lifetime (h)	Frequency
5000–6000	7
6000–7000	12
7000–8000	34
8000–9000	27
9000–10 000	10
10 000–11 000	8
11 000–12 000	2

- Make a box and whisker plot of the data.
- Make a histogram of the data and mark the quartiles on it.
- Describe the middle 50% of the data.
- Identify any outliers.

2.

A car manufacturer tested the gap between the doors and the body of a car. Eighteen samples were taken. Their gaps, in millimetres, are shown:

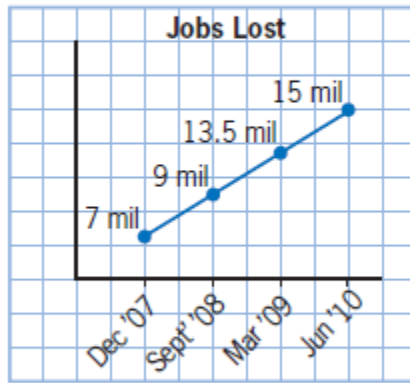
1.7	1.9	1.4	1.4	1.5	1.7	1.1	1.6	1.9
1.4	1.5	1.5	1.6	1.5	1.3	1.8	1.6	1.2

- Determine the sample mean and standard deviation.
- Calculate the z -score of a door with gap of 1.6 mm. Interpret its meaning.
- Calculate the z -score of a door with gap of 1.4 mm. Compare its distance from the mean to that of 1.6 mm.

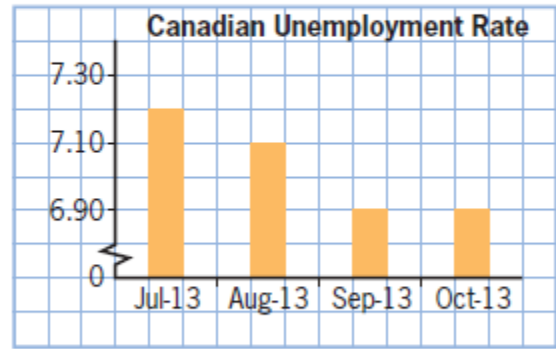
C.

Explain how each case uses misleading or questionable statistics.

- a) A news report on jobs lost shows this graph.



- b) A newspaper headline states "Unemployment Dropping" and includes this graph.



- c) A yogurt manufacturer states that 67% of customers surveyed claimed they lost weight while eating its brand of yogurt.