

# Northview Collegiate

Unit 3 Assignment

Course Code: MDM4U

Name:

Date:

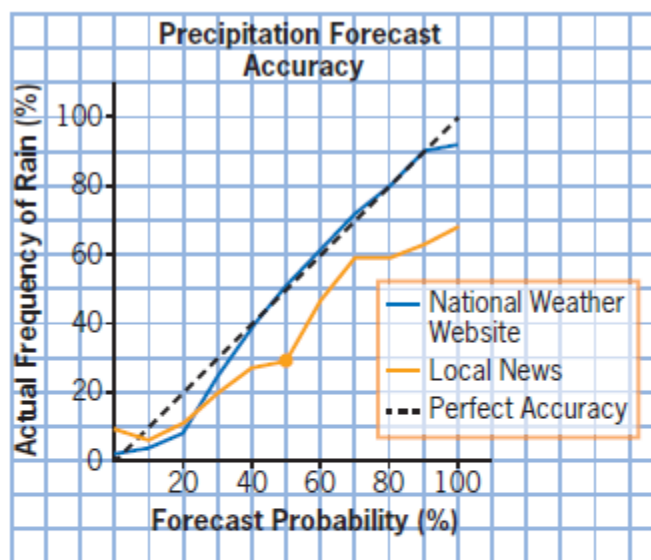


K/U:	T/I:	A:	C:
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## 1. K/U (5)

### Variability in Data

Sometimes people can use accurate information to tell different stories. Probability of precipitation (PoP) is a common measurement used in weather forecasts. The graph shows the accuracy of a national weather website and local news channels compared to perfect accuracy.



Source: Data from *The Signal and the Noise: Why So Many Predictions Fail—But Some Don't*

- What does the yellow dot indicate?
- Which outlet is more accurate, the national weather website or the local news?
- If both outlets base their forecasts on information collected by Environment Canada, what reasons can you suggest for their differences?

**2. (5)**

The list shows the marks for 25 students on a recent test out of 40.

31 28 28 30 20 25 38 40 26 28 15 21 28  
36 25 16 21 34 37 30 23 24 36 32 25

- a) Calculate the 80th percentile.
- b) What percentile is a mark of 25?
- c) What percentile is a mark of 40?

**T/I.(5)**

A teacher is calculating the marks for the students in her Data Management class. She assigns the following values to each category:

Knowledge: 25%	Thinking: 10%
Application: 20%	Culminating Project: 15%
Communication: 15%	Final Exam: 15%

Kyle has not yet written his final exam, but his marks in the first five categories are 90, 79, 82, 70, and 85.

- a) Determine the weighted mean for Kyle before the final exam.
- b) How does this weighted mean differ from the unweighted mean?
- c) What mark must Kyle receive on the final exam to finish the course with 84%?

**A. (5)**

The ages of participants in a school's talent contest are listed below.

16 17 18 16 15 16 17 15 18 14  
17 19 18 16 17 17 17 14 15 18

Use technology to answer the questions.

- a) Plot a histogram of the data.
- b) Calculate the mean and standard deviation.
- c) What would happen to the standard deviation if the first person's age were 18?
- d) What would happen to the standard deviation if the second person's age were 16 instead of 17?
- e) What would happen to the standard deviation if each person were one year older?
- f) Which ages are more than one standard deviation from the mean?

- a) A teacher wishes to get feedback from the class about a recent presentation. He plans to draw five students' names out of a hat. All 30 students' names will be in the hat.
- b) A telephone company wants to determine whether a fitness centre would be used by its 3000 employees. The company plans to survey 300 employees by interviewing every tenth person on the payroll list.

- c) A chain store is trying to decide whether to open a store in Huntsville, Ontario. The company decides to survey 25% of the population of Huntsville and three nearby towns. The table shows the population of each location.

Location	Population
Huntsville	19 056
Kearney	841
Emsdale	2 317
McMurrich	779

- d) A market research company mails surveys to all of the adult residents in a town. The survey asks about brands of consumer products. The residents are asked to mail back their responses in a prepaid envelope.
- e) A reporter stops people on a downtown street to ask what they think of the city's waterfront.
- f) Researchers want to investigate the use of pesticides by apple farmers in Ontario. They divide the province into 10 sections and choose five sections at random. They sample all farms within the five sections.
- g) The province wants to randomly choose 250 students. It randomly selects five school boards from the 72 in Ontario. Then it randomly selects five schools in each of those boards. Finally, it randomly chooses 50 students in each of those schools.