

**ALBERTA DISTANCE LEARNING CENTRE**  
**Mathematics 30-3 Online**  
**MAT3793**  
**Unit E Chapter 1 Assignment**

<b>Student's Questions and Comments</b>

<b>FOR STUDENT USE ONLY</b>
(if label is missing or incorrect) <b>Student ID:</b> _____

<b>Name</b>
<b>Address</b>
<b>City/Town</b>
<b>Province</b>
<b>Postal Code</b>

Please use the pre-printed label for this  
course and Assignment

**Apply Assignment Label Here**

<b>FOR ADLC USE ONLY</b>
<b>Assigned to</b> _____
<b>Marked by</b> _____
<b>Date received</b> _____

**Summary**

	Marks Earned	Total Marks	Percent
Lesson 1 - Part B		8	
Lesson 2 - Part B		16	
Lesson 3 - Part B		10	
Lesson 4 - Part B		7	

<b>Teacher's Comments:</b>
_____ <b>Teacher's Signature</b>

## CANADIAN CATALOGUING IN PUBLICATION DATA

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Unit E Chapter 1 Assignment

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# **Mathematics 30-3 Online**

## **Unit E Chapter 1 Assignment**

**Statistics and Probability**

## **Submission Instructions**

You will submit your assignments online by uploading them to your course in Moodle. Once you log in to your course, you will find more detailed submission instructions provided by your teacher.

Go to this website to learn how to log in to Moodle:

**<http://quick.adlc.ca/login>**

If you have further questions about submitting your work, please contact your teacher.

# Mathematics 30-3 Online

## Unit E Chapter 1 Assignment

### Our Pledge to You:

Enrolling in this course is another step toward an Alberta High School Diploma. Everyone at Alberta Distance Learning Centre is committed to helping students achieve their educational goals. We welcome your contact in person or by phone, fax, e-mail, voice mail, or postal mail.

### Advice:

Your achievement in this course is determined by your success in the assessments of each unit. Your responses to assignments indicate your understanding of outcomes established by Alberta Education.

- Before responding to the assigned questions, read all relevant directions for the Assignment and instruction in the course materials, including the appropriate Guide for Learning and any other resources provided.
- When you encounter difficulties, re-read the directions for the Assignment and review the relevant instruction in the Guide for Learning.
- If you require further clarification, contact your Alberta Distance Learning Centre teacher for assistance.

### Notice:

You have one opportunity to submit each Assignment.

- Only under exceptional circumstances will your ADLC teacher re-assess your work. Therefore, apply significant effort to each Assignment.
- If your final exam mark is vastly different from your Quiz marks, your teacher may apply discretion in determining your course mark.

## Format

You are encouraged to **handwrite** your written work.

If you type your work, be sure to follow these guidelines:

- Include your full name and student file number as a document header.
- Double-space your final copy.
- Staple your printed work to this Assignment.

## ADLC Plagiarism Policy (ADLC Administrative Policy 60–1)

Plagiarism is the practice of representing someone else's work or ideas as one's own. It is an academically dishonest practice and is detrimental to a student's knowledge and skill development. ADLC takes a progressive approach to plagiarism to educate and correct the behaviour.

All incidents will be documented and are subject to the consequences outlined below:

First Incident	Second Incident	Third Incident
The student is given zero scores on any work suspected of being plagiarized and given the opportunity to resubmit original work.	The student is given zero scores on any work suspected of being plagiarized and is not given the opportunity to resubmit original work. A letter is sent by the principal to parents and school facilitators outlining this administrative practice and the consequences.	The student is removed from the course in which plagiarized work is suspected and notifications are put into the ADLC Student Information System, barring future registration to the course in question. A withdrawal letter is sent by the principal to parents and school facilitators.

## Important

While removal from a course is limited to the course in which the third incident has occurred, the preceding steps can occur across different courses. A student who has been found plagiarizing in Course A and held to the First Incident consequences who then plagiarizes in Course B will move to the Second Incident consequences.

Any further occurrences after the Third Incident in any other courses will result in immediate removal from that course. Ongoing occurrences may result in removal from all courses and barring of registration with ADLC.

## Sharing of ADLC Work (ADLC Administrative Policy 60–4)

Plagiarism is the practice of representing someone else's work or ideas as one's own. It is a dishonest practice and is damaging to a student's knowledge & skill development. Plagiarism is addressed in ADLC Administrative Policy 60-01.

The sharing of school work, especially after having been marked by ADLC, to students for the purposes of submitting plagiarized work (either paraphrasing or directly copying student work) is dishonest, and this sharing goes against the Alberta School Act's expectation of students to respect school rules and co-operate with how schools offer education to their students.

ADLC prefers to take a progressive approach to the sharing of work with other students, in order to educate and correct the behaviour.

If a student is currently enrolled in any ADLC course and found to be sharing school work, whether from their current course or another, to others, the following will happen:

### First Incidence

The student is informed that their work has been submitted as plagiarized work by another student; a warning is provided that further submissions of such work, from any course, will be grounds for removal from the current course(s).

### Second Incidence

The student is removed from all active ADLC courses.

If the student is not currently enrolled in any ADLC course and found to be sharing school work with others, they are informed that their work has been submitted as plagiarized work by another student and, as such, further registrations in any ADLC course will not be permitted. The incident will be recorded on the student's file.

Such actions do not limit ADLC to pursue other remedies (actions), either criminal or civil, for the distribution of its copyrighted materials.



## Lesson 1 Assignment

### Measures of Central Tendency – Mean, Median, and Mode – Part B

Work slowly and carefully. If you are having difficulty, go back and review the appropriate *Lesson*.

For full marks, show all calculations, steps, and/or explain your answers.

Total marks: 8

- ② 12. A local Dollar Store sells items for \$1.00, \$1.50, \$2.00 and \$2.50. The owner records the price of each item and the number of items sold daily in a table.

Price	Number of Items Sold
\$1.00	120
\$1.50	95
\$2.00	150
\$2.50	10

Which measure of central tendency is recommended to determine the most popular pricing category? Explain.

- ② 13. The table shows the number of hours per week that Shamus has worked at his part-time job. Which measure of central tendency is most representative of the average number of hours that Shamus works per week? Explain.

Week	Hours
1	12
2	9
3	13
4	10
5	13
6	15
7	10



- 2 14. The owner of a café was interested in the age of her customers in order to plan a marketing campaign. One day, she collected data on the customer's ages.

The ages were: 42, 36, 45, 27, 73, 40, 32, 35, 41, 38.

Which measure of central tendency is most representative of the average age of the customers?

- 2 15. Joel cycled for three consecutive days. The distance in kilometres that he travelled each day are: 42 km, 36 km, and 45 km.

Joel wants to have a mean of at least 40 kilometres per day. What is the minimum number of kilometres he needs to ride on the fourth day to reach his goal?



## Lesson 2 Assignment

### Outliers and Trimmed Mean – Part B

Work slowly and carefully. If you are having difficulty, go back and review the appropriate *Lesson*.

For full marks, show all calculations, steps, and/or explain your answers.

Total marks: 16

7. The hours that Shane worked over a 13-week period were recorded in a table of values.

Week	Hours Worked
1	12
2	8
3	13
4	10
5	13
6	0
7	10
8	11
9	9
10	14
11	15
12	30
13	28

1

- a. Calculate the mean hours worked.

1 b. Calculate the median for the hours worked.

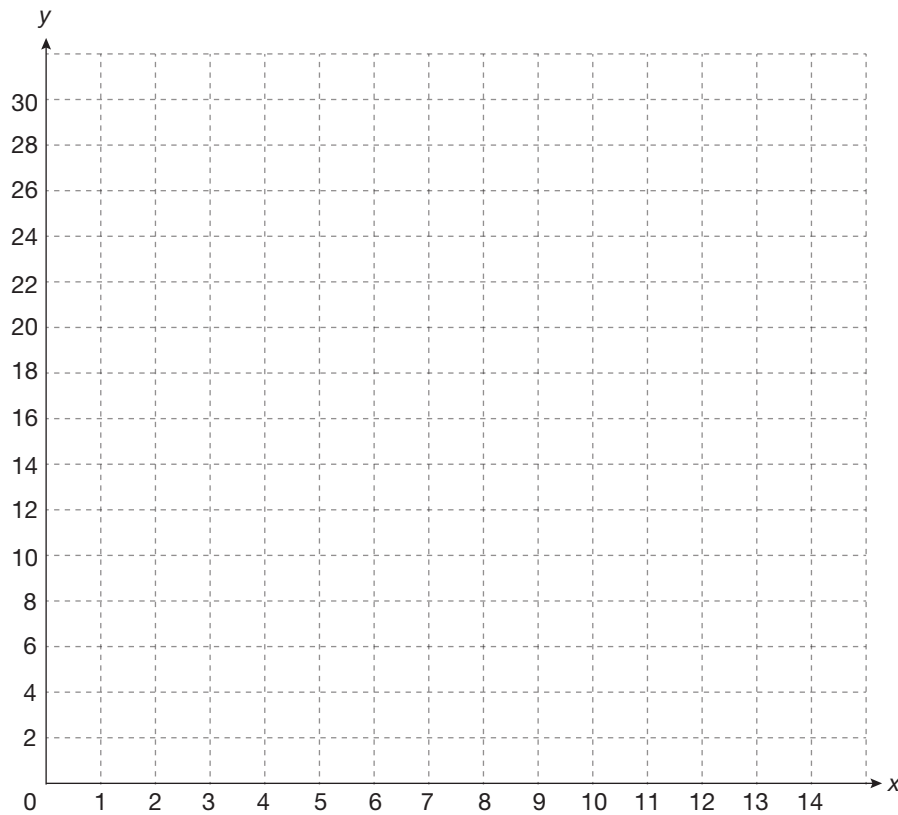
1 c. Calculate the mode(s) for the hours worked.

2

d. Graph the data.

Be sure to include

- the labelled axis (including units)
- the dependent variable on the  $y$ -axis and the independent variable on the  $x$ -axis
- a title
- a line connecting points when applicable (continuous: yes; discrete: no)



2

e. Circle and state any outliers on the graph.

1

f. Calculate the trimmed mean.

- ① g. Which is the best representation of the data: the mean or the trimmed mean? Explain.

8. Thomas calculated the trimmed mean for the following set of data.

42, 36, 45, 27, 73, 40, 32, 35, 41, 38

$$\begin{aligned}\bar{x} &= \frac{\text{sum of the values in the data set}}{\text{total number of values in the data set}} \\ &= \frac{32 + 35 + 36 + 38 + 40 + 41 + 42 + 45}{10} \\ &= \frac{309}{10} \\ &= 30.9\end{aligned}$$

- ① a. Identify the error that Thomas made.

- ① b. Calculate the trimmed mean.

9. Rachel conducted a survey at her school to find the number of songs on students' phones. The data for 10 students in the class was 271, 329, 362, 408, 425, 457, 510, 510, 541, 638. Rachel's friend Sarah just received her phone as a gift and has only 25 songs on her phone so far.

Explain how including this value will influence

①

a. the mean

①

b. the median

①

c. the mode

②

10. In 2017, one source listed the average individual income in Alberta to be:

Average	Annual Salary
mean	\$72 154
median	\$59 384
mode	\$30 000

Which measure of central tendency should Statistics Canada record on their website? Explain.



## Lesson 3 Assignment

### Weighted Means – Part B

Work slowly and carefully. If you are having difficulty, go back and review the appropriate *Lesson*.

For full marks, show all calculations, steps, and/or explain your answers.

Total marks: 10

- ② 6. The symbol for magnesium is Mg. A magnesium atom has three possible weights: 24 amu, 25 amu and 26 amu.

Mass of Magnesium Atom (amu)	Percent Occurrence (%)
24	79
25	10
26	11

Calculate the average weight of a magnesium atom. Answer to the nearest hundredth.

- 2 7. The school computer lab has five different types of 15.6" laptops. Calculate the mean mass for a 15.6" laptop using the data in the table.

Number of Computers	Mass (lb)
5	4.5
8	5.0
3	5.5
10	6.0
2	6.5



8. Josée and her classmates are raising money to pay for costumes and supplies for the school play. She sells candygrams for \$1, flowergrams for \$2, keychains for \$5, and t-shirts for \$10. All items have been donated by local businesses, so the profits go directly to fund the play.

The students collected the following data from a total of 34 sales:

\$1, \$2, \$1, \$1, \$1, \$2, \$1, \$1, \$1, \$2, \$1, \$2, \$1, \$1, \$1,  
\$10, \$5, \$5, \$10, \$10, \$10, \$10, \$5, \$10, \$5, \$10, \$5, \$10, \$5, \$10, \$10, \$10, \$5, \$10

1

- a. Why should the weighted mean formula be used instead of the mean formula to find the average price raised per item sold?

2

- b. Using the weighted mean formula, calculate the average price raised per item sold.

Selling Price (\$)	Number of Items

9. Two classes of students studying French wrote the same exam. One class had 14 students with an average of 86%. The other class had 32 students with an average of 72%.

The average mark was calculated as follows:

$$\begin{aligned}\bar{x} &= \frac{\text{sum of the values in the data set}}{\text{total number of values in the data set}} \\ &= \frac{86 + 72}{2} \\ &= \frac{158}{2} \\ &= 79\end{aligned}$$

- ① a. Identify the error in the calculation above.

- ② b. Find the mean.



## Lesson 4 Assignment

## Percentiles – Part B

Work slowly and carefully. If you are having difficulty, go back and review the appropriate *Lesson*.

For full marks, show all calculations, steps, and/or explain your answers.

Total marks: 7

- ① 8. Waldron participates in a music competition. Of the 45 students who participated, he scored higher than 40 students. What is Waldron's percentile rank?
- ② 9. Linda earned 78% on her math test and had a percentile rank of 78 on her English test. Explain how these two values have different meanings.

10. In January 2018, the average hourly wage in each province for all 15 to 24 year old workers is shown in the chart below.

Province	Hourly Wage (\$)
Newfoundland and Labrador	14.70
PEI	14.17
Nova Scotia	13.51
New Brunswick	13.94
Quebec	15.16
Ontario	15.66
Manitoba	14.49
Saskatchewan	16.72
Alberta	18.21
British Columbia	15.56

2

- a. What is the percentile rank for the average hourly wage in Manitoba?

1

- b. Referring to the data in the table, is it better to have a higher or lower percentile rank? Explain.

1

- c. Find the median.



# ADLC

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