ALBERTA DISTANCE LEARNING CENTRE
Mathematics 30-3 Online
MAT3793
Unit C Assignment

Student's Questions and Comments

FOR STUDENT USE ONLY

(if label is missing or incorrect)
Student ID:

_____

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

Name

Address

City/Town **Province** **Postal Code**

Apply Assignment Label Here

FOR ADLC USE ONLY

Assigned to

_____

Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Marks	Percent
Unit C		**40**	

Teacher's Comments:

_____

Teacher's Signature

NEW September 2018

CANADIAN CATALOGUING IN PUBLICATION DATA

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Mathematics 30-3 Online
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Unit C Assignment

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For Users of Alberta Distance Learning Centre Courseware
Much time and effort is involved in preparing learning materials and activities that meet curricular expectations as determined by Alberta Education. We ask that you respect our work by honouring copyright regulations.

Alberta Distance Learning Centre website:

http://www.adlc.ca

The Internet can be a valuable source of information. However, because publishing to the Internet is neither controlled nor censored, some content may be inaccurate or inappropriate. Students are encouraged to evaluate websites for validity and to consult multiple sources.

Mathematics 30-3 Online

Unit C Assignment

Game Strategies

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 C 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	Second 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).	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

Game Strategies

Use strategic thinking to play the games below and answer the questions that follow.

The following rubric will be used to assess your grade.

Total marks: 40

Category	Strategy and Procedures	Mathematical Reasoning
	The student…	***The student…***
4	• uses efficient and effective strategies to solve the problem(s) and complete the questions	• presents complex and refined mathematical reasoning
3	• uses effective strategies to solve the problem(s) and complete the questions	• presents effective mathematical reasoning
2	• uses effective strategies inconsistently to solve the problem(s) and complete the questions	• presents some evidence of mathematical reasoning
1	• does not use effective strategies to solve the problem(s) and complete the questions	• presents superficial or confusing evidence of mathematical reasoning

Some of the following games and puzzles may be familiar to you. If you have not played some of these games, use a search engine on the Internet to help you become more familiar with the game and/or puzzle.

1. The Water Jug Game

3 litres 5 litres

Using a $3\ \mathrm{L}$ jug and a $5\ \mathrm{L}$ jug, how would you measure exactly $4\ \mathrm{L}$ of water?

2. Suduko

Every Suduko has a solution that can be found logically. Enter numbers into the blank spaces so that each row, column, and 3×3 box contains the numbers 1 to 9.

	2	8	6	4	7	1	9	3
9	4	1	8				5	6
6		7	5	9	1	2	8	
2	8				9	3	1	7
7	5	3	2	1		6		9
				6			2	
8		5			6		3	
3	6	4	1	8	5	9	7	
1				7		8	6	

What was your first move in solving this puzzle? Why did you choose this as your first move?

3. The Game of Nim

This version of Nim begins with 12 nickels (other coins will do) arranged in three horizontal rows as shown.

a. Two players take turns removing one or more coins according to the following rules.
   - On any turn, the coin(s) removed must be from the same horizontal row.
   - The person who takes the last coin wins. Only one coin can be removed by the winner.

In case the game is still unclear, here is a game scenario between two players, Logan and Amber.

Start:

Amber takes 2 from Row A 	Logan takes 2 from Row B 
Amber takes 2 from Row B 	Logan takes 4 from Row C 
Amber takes 1 from Row C 	Logan WINS because he has one coin left to take… 

Now it is your turn.

b. Play a minimum of five games of Nim with a friend or family member.

c. Answer the following questions after completing your games.

i. Is there a winning strategy? Explain.

ii. Does it matter who goes first? Why or why not?

iii. Suppose the rules were changed to whoever ends up with the last coin loses. Is there a winning strategy? Explain.

4. Number Patterns

   a. A student makes the following statement:

      "The word PROBABILITY compares to the word TRAP as the number 12345467689 compares to the number _____."

      i. The four-digit number that completes the statement is _____.

      ii. Develop a number pattern problem similar to the question above. A repeating letter must be included in your original word. Provide a solution to this problem.

b. The diagram below shows the first three steps of a pattern.

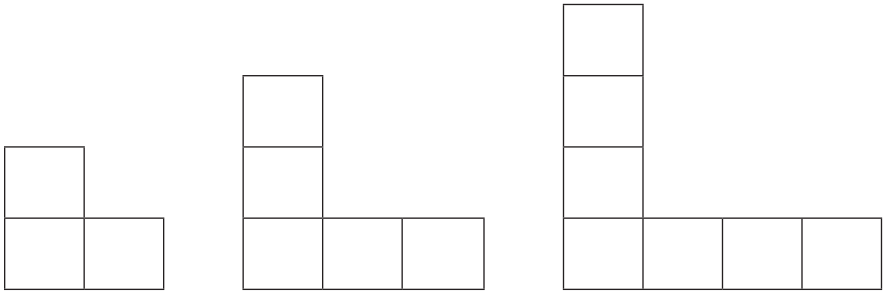


Figure 1 Figure 2 Figure 3

i. Describe the pattern above by relating the figure number to the number of squares in the figure. If the pattern were to continue, how many squares would there be in the 9th figure?

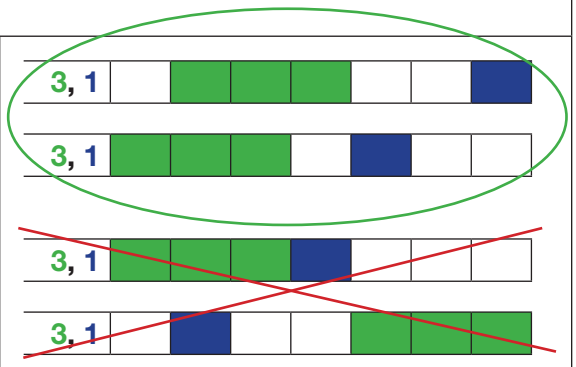
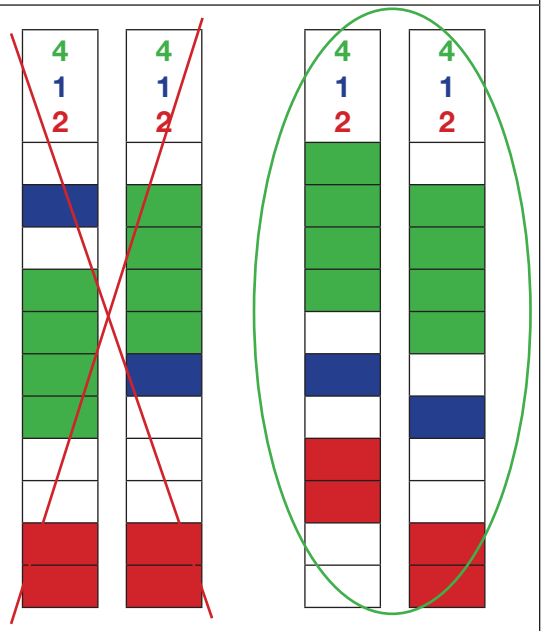
Figure Number	Number of Squares
1	
2	
3	
4	
5	
6	
7	
8	
9	

Pattern:

ii. Develop a number pattern problem similar to the question above. Draw the first three figures as part of your problem. Provide a solution and include the description of the pattern to your problem.

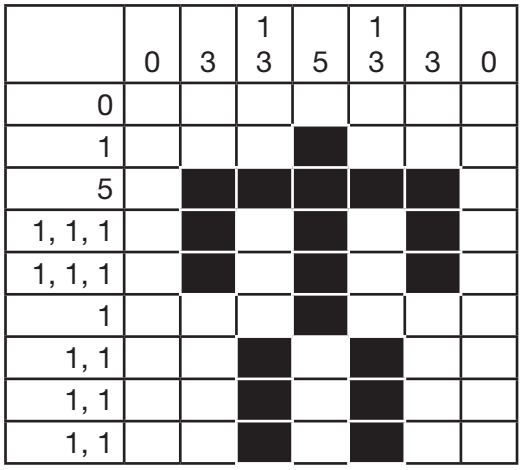
5. Nonogram

A nongram is a type of logic puzzle where the cells of a grid are filled according to numbers on the side and top of the puzzle. The numbers on the side and top indicate the number and size of groups of filled cells in the row or column.

<table>
<tr><td colspan="2">How to read nonogram clues.</td></tr>
<tr><td>• The clue 3, 1 means there will be a group of 3 cells without a break in it and a group of 1 cell in the row. There will be at least one empty cell between the two. The clue also tells you the group of 3 will be to the left of the group of 1.</td><td> 
</td></tr>
<tr><td>• The clue 4
1
2 tells you there will be a group of 4 nearest the top, then a group of 1, and then a group of 2 closest to the bottom.</td><td> 
</td></tr>
<tr><td>• The clues do not tell you how far apart the groups will be, but there will always be at least 1 cell between each group.</td><td></td></tr>
</table>

Below is a nonogram puzzle and its solution.

	0	3	1 3	5	1 3	3	0
0							
1							
5							
1, 1, 1							
1, 1, 1							
1							
1, 1							
1, 1							
1, 1							



When solving a nonogram, it helps to mark cells that cannot be filled as well as cells that must be filled. It is a good idea never to mark a box until you are absolutely sure of its contents.

Complete the following nongram puzzle.

	1	2	4	6	3	3	4	5	6	7	8	9	10	11	12	2 8	1 1 7	1 1 7	2 2 4	6 4	6 3	5 2	3 2	2 1	1
1, 7																									
2, 3, 4																									
4, 3, 2, 4																									
3, 4, 5																									
2, 7, 7																									
2, 14																									
14																									
16																									
19																									
17																									
14																									
8																									

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