ALBERTA DISTANCE LEARNING CENTRE
Mathematics 30-1
MAT3791
Workbook 7.3

Student's Questions and Comments

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Student Name:

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Assigned to

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Marked by

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Date received

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Summary

	Marks Earned	Total Marks	Percent
Practice 7.3A	**I have ____ /8 and ____%**		
Practice 7.3B	**I have ____ /8 and ____%**		
Explore Your Understanding 7.3			

Teacher's Comments:

_____

Teacher's Signature

REVISED MAY 2019

CANADIAN CATALOGUING IN PUBLICATION DATA

MAT3791
Mathematics 30-1
ISBN: 978-1-927090-09-1
Workbook 7.3

4601 - 63 Avenue
Barrhead, Alberta Canada T7N 1P4

Printed in Canada

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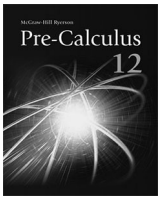

Pre-Calculus 12
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Explore Your Understanding Assignment 7.3

This assignment includes 17 marks. You are expected to complete **14 marks** worth of work. If you complete more than this, all completed questions will be used to assign a grade. For example, if you complete all 17 marks worth of work, your assignment total will be 17 instead of 14. You can also complete a question and label it "DO NOT MARK" if you are not confident in your work. Your teacher will then give feedback on your response, which will help clarify any misconceptions, but will not count it towards your required mark total. Please contact your teacher if you have any questions.

1. Franchise owners of Stu-Gro Inc. earn money cutting grass and cleaning gardens during the summer. The amount they earn from cutting grass can be represented by the function $C(n) = 50n - 200$, where $C(n)$ is the earnings, in dollars, and n is the number of lawns cut. Similarly, $G(n) = 30n - 75$ represents their earnings from cleaning gardens.

(1) a. Determine a new function, $T(n)$, that represents their total earnings if all customers have their grass cut and their garden cleaned.

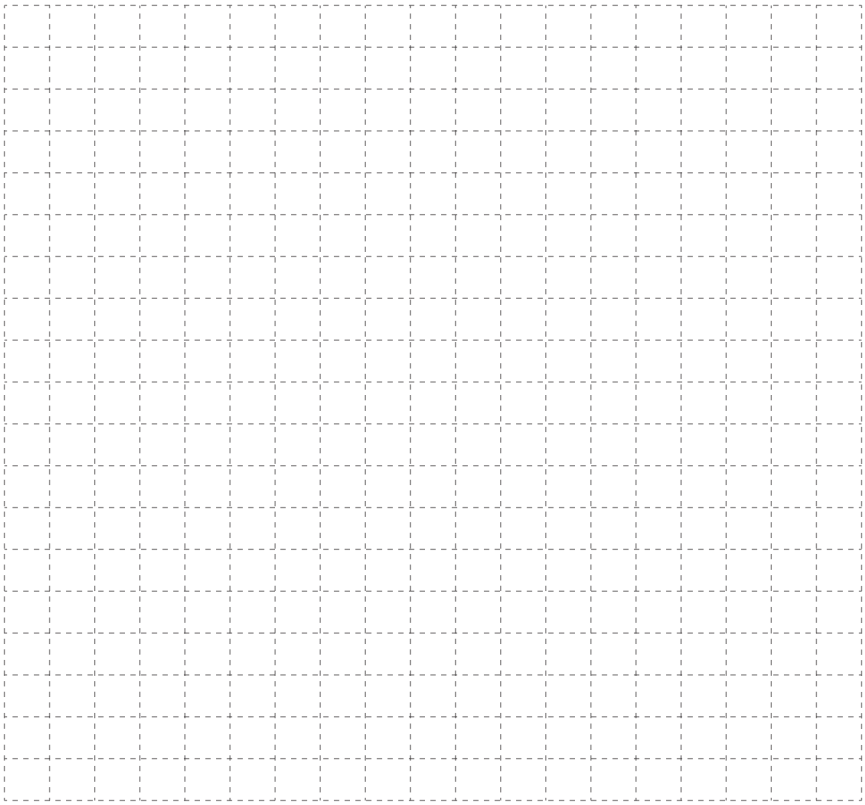
(1) b. State the domain and range of $T(n)$. Justify the answer using the given context.

(1) c. Determine the number of yards being maintained (lawns cut and gardens cleaned) if a franchise owner earns $\$2\,525$.

2. Consider the two functions $f(x) = 2x + 1$ and $g(x) = 4x^2 - 1$.

(1) a. Determine $\left(\frac{f}{g}\right)(x)$. Simplify if possible.

(1) b. Sketch the graph of $\left(\frac{f}{g}\right)(x)$.



(1) c. Determine the domain and range of $\left(\frac{f}{g}\right)(x)$.

3. A store's employees receive a 25% discount on all purchases. During a promotion, all items in the store were reduced by $\$10$. Let x be the original price of an item.

(1) a. Determine a function, $E(x)$, that represents the purchase price when only the employee discount is applied.

(1) b. Determine a function, $C(x)$, that represents the purchase price when only the promotional discount is applied.

(1) c. Determine $E(C(x))$ and $C(E(x))$.

(1) d. Explain what each function in c. represents. Which is the better deal for an employee?

4. There are 6 females and 4 males running for Chair, Treasurer, and Dance Coordinator of the Grad Committee

(1) a. Determine the total number of ways the three positions can be filled.

(1) b. If the committee must include at least one male and one female, in how many ways can the three positions be filled?

5. There are 6 females and 4 males from which a committee of three is to be chosen.

(1) a. Determine the total number of ways the three positions can be filled.

(1) b. If it is decided the committee cannot be made of only males or only females, determine the number of ways the three positions can be filled.

6. Consider the binomial power $\left(\frac{3}{x}+x^2\right)^8$.

(1) a. Determine the number of terms in the expansion.

(1) b. If the terms are written in ascending order by degree of x, determine the middle term of the expansion. Show the term in both unsimplified and simplified form.

(1) c. Will the expansion contain a constant term? Explain.

When this workbook is complete, submit it using a method described at the beginning of this *Workbook*. Next, complete *Test Your Understanding Quiz 7.3* online in Moodle.

Once all of your assignments have been marked, you will need to write the final exam. This is a supervised exam and can be written with an approved exam supervisor. If you have questions, please contact your teacher.

ADLC | Alberta Distance Learning Centre

adlc.ca
1-866-774-5333
info@adlc.ca

Alberta Distance Learning Centre
Box 4000 4601 – 63 Avenue
Barrhead, Alberta T7N 1P4

Revised May 2019