ALBERTA DISTANCE LEARNING CENTRE
Mathematics 30-1
MAT3791
Workbook 4.2

Student's Questions and Comments

FOR STUDENT USE ONLY

Student Name:

_____

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Assigned to

_____

Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Marks	Percent
Practice 4.2A	**I have ____ /8 and ____%**		
Practice 4.2B	**I have ____ /8 and ____%**		
Explore Your Understanding 4.2			

Teacher's Comments:

_____

Teacher's Signature

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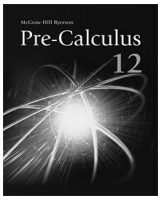

Pre-Calculus 12
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Explore Your Understanding Assignment 4.2

This assignment includes 13 marks. You are expected to complete **11 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 13 marks worth of work, your assignment total will be 13 instead of 11. 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. Write each expression as a single logarithm in simplest form.

(2) a. $\frac{\log a}{2} - \frac{\log b}{3}$

(2) b. $2\log_8(x+3) - \log_8(x^2+x-6)$

(2) 2. Use the formula for compound interest, $a = P(1+i)^n$, to determine how many years it will take for an investment of $\$10\,000$ to triple if the interest rate is 7% per year, compounded quarterly. [Hint: There is a **yearly** interest rate that is compounded **quarterly**. Search "interest calculator" online to check the answer.]

(2) 3. Algebraically determine the exact solution to $2^{x+1} = 17^{x}$.

(2) 4. Algebraically determine the exact solution to $\log_4 x = 2 - \log_4 6$.

5. This question involves the derivation of the change of base formula for logarithms.

(1) a. Convert $\log_b c = x$ into exponential form, and then solve for x using $\log_a$.

(1) b. Explain how the result from part a. can be used to write a formula for changing logarithm bases.

(1) c. Express $\log_6 50$ using base 10 logarithms.

When this workbook is complete, submit it using a method described at the beginning of this *Workbook*. Next, complete *Test Your Understanding Quiz 4.2* online in Moodle. When complete, return to the *Module* and begin *Lesson 5.1*.

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