

ALBERTA DISTANCE LEARNING CENTRE

Mathematics 30-1

MAT3791

Workbook 1.4

Student's Questions and Comments

FOR STUDENT USE ONLY

(if label is missing or incorrect)
File Number: _____

FOR ADLC USE ONLY

Assigned to

Marked by

Date received

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

City/Town

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Address

Name

Apply Workbook Label Here

Summary

	Marks Earned	Total Marks	Percent
Practice 1.4A	I have ____ /8 and ____ %		
Practice 1.4B	I have ____ /8 and ____ %		
Explore Your Understanding 1.4			

Teacher's Comments:

Teacher's Signature

CANADIAN CATALOGUING IN PUBLICATION DATA

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Workbook 1.4

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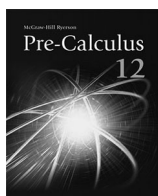
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Alberta Distance Learning Centre website:

<http://www.adlc.ca>

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Pre-Calculus 12
© McGraw-Hill Ryerson Ltd.

The background of the entire page is a grayscale image. It shows a biplane in flight, viewed from below, flying over a city with several tall, modern skyscrapers. A faint grid pattern is overlaid on the entire image. In the top right corner, there is a faint outline map of Africa.

Mathematics 30-1

Workbook 1.4

Lesson 1.4

Unit 1: Functions – Part 2

Instructions for Submitting Workbooks

1. Submit Workbooks **regularly** for assessment.
2. Submit only **one Workbook at a time**. This allows your teacher to provide feedback that you can apply to subsequent course work and exams.
3. Check that your **Workbook is complete**. Your Workbook will be returned as **incomplete** if a reasonable attempt with relevant work has not been made. Therefore, **do not leave any questions blank**. Contact your teacher for help **prior** to submitting this Workbook.
4. Attach the correct address label or complete the Workbook coversheet.
5. Submission Methods:

Postal Mail – Mail the completed Workbook to an Alberta Distance Learning Centre office. Ensure that you attach sufficient postage by having the envelope weighed at the post office.

Electronically – Scan the completed Workbook. Save the file to your computer as **Math 30-1 Workbook# FirstInitial LastName**. Then, upload the file.

Fax – Fax the completed Workbook to Alberta Distance Learning Centre.

In Person – Drop the completed Workbook at the Alberta Distance Learning Centre office in Barrhead. The address is listed below.

Barrhead

4601 - 63 Avenue

Barrhead, Alberta T7N 1P4

Phone 780-674-5333

Toll-free 1-866-774-5333

Fax 780-674-7593

Mathematics 30-1

Workbook 1.4

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 Workbook 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 Workbook 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 Workbook.

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

ADLC Plagiarism Policy (ADLC Administrative Policy 60–1)

Program integrity and academic honesty are very important at ADLC. When students are successful in ADLC courses, we want full confidence that they have clearly met the intended program outcomes.

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 & skill development.

ADLC takes a progressive approach to plagiarism to educate and correct the behaviour. If a student is currently enrolled in any ADLC course and found to have plagiarized work, the following steps are taken:

Warning: ADLC Teachers decide if a warning happens instead of calling the first instance. The warning is recorded in SIS Communications.

First Instance	Second Instance	Third Instance
Students are assigned a mark of zero and a chance to redo the question or the assignment. It is up to the ADLC teacher's discretion whether or not to assign a mark of zero on the plagiarized question or on the entire assignment.	The student is assigned a mark of zero with no chance to redo the question or the assignment. It is up to the ADLC teacher's discretion whether or not to assign a mark of zero on the plagiarized question or on the entire assignment.	Student is removed from the course in which the third instance occurred.
ADLC teachers record a SIS Communication and a 'Student Note'.	The ADLC Principal, or designate, is notified and the instance is recorded in SIS Communications.	The ADLC Principal, or designate, is notified and the instance is recorded in SIS Communications.

Important

While removal from a course is limited to the course in which the Third Instance 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 Instance consequences who then plagiarizes in Course B will move to the Second Instance consequences.

Further Instances

After the Third Instance, any further instances of plagiarism in any course will result in immediate removal from that course. Ongoing occurrences may result in removal from all courses and barring of registration with ADLC.

Clean Slate

Students earn a clean slate after one calendar year passes with no instances.

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 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:

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.

Practice Assessment

Practice provides practice and allows you to self-reflect on your conceptual understanding of the Lesson skills. You will mark your work for *Practice* in each *Workbook* according to the following rubric.

Category	Strategy and Procedures	Response to Questions
	<i>I have...</i>	<i>I have...</i>
4	<ul style="list-style-type: none"> used efficient and effective strategies to solve the problem(s) 	<ul style="list-style-type: none"> provided detailed explanations and followed directions appropriately to complete all questions
3	<ul style="list-style-type: none"> used effective strategies to solve the problem(s) 	<ul style="list-style-type: none"> provided clear explanations and followed directions adequately to complete most questions
2	<ul style="list-style-type: none"> used effective strategies inconsistently to solve the problem(s) 	<ul style="list-style-type: none"> provided incomplete explanations and followed some directions to complete a few questions
1	<ul style="list-style-type: none"> used ineffective strategies to solve the problem(s) 	<ul style="list-style-type: none"> provided incomplete explanations and have not followed directions to complete some questions

Complete *Practice* exercises using your best work, showing all relevant steps needed to arrive at your solution. Refer to the *Module* to review lesson instructions. Contact your teacher for assistance or clarification as needed, or to investigate the topic further.

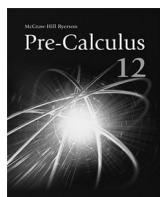
Check and correct your work using the solutions provided in *Appendix* in the *Module*.

Practice is worth 8 marks; your mark can help you gauge your understanding of *Lesson* material.

After you have assessed your work, reflect on your understanding of the concepts addressed in the *Practice* exercises in the table provided.



Practice 1.4A



Now, try what you have learned so far. Turn to pages 342 to 345 in *Pre-Calculus 12* and do questions 2a to 2c, 3, 6a to 6d, 8a to 8d, 10a to 10d, and 15a to 15c.

You may check your practice work by turning to the *Appendix* section of the *Module*.

Questions 2a to 2c, page 342

a.

My solution	My corrections if needed

b.

My solution	My corrections if needed

c.

My solution	My corrections if needed

Question 3, page 342

My solution	My corrections if needed

Questions 6a to 6d, page 343

a.

My solution	My corrections if needed

b.

My solution	My corrections if needed

c.

My solution	My corrections if needed

d.

My solution	My corrections if needed

Questions 8a to 8d, page 343

a.

My solution	My corrections if needed

b.

My solution	My corrections if needed

c.

My solution	My corrections if needed

d.

My solution	My corrections if needed

Questions 10a to 10d, page 344

a.

My solution	My corrections if needed

b.

My solution	My corrections if needed

c.

My solution	My corrections if needed

d.

My solution	My corrections if needed

Questions 15a to 15c, page 345

a.

My solution	My corrections if needed

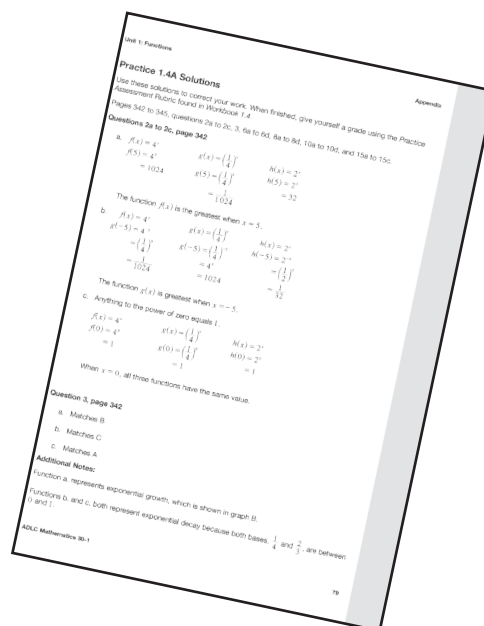
b.

My solution	My corrections if needed

c.

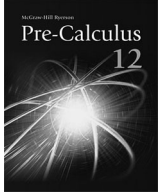
My solution	My corrections if needed

Turn to *Practice 1.4A Solutions* in the *Appendix* in *Unit 1 – Part 2*. Use the solutions to check your work and make corrections. Next, use the Practice Assessment rubric found on page 1 to give yourself a grade. **Record your grade on the cover of this booklet.** When complete, continue in the *Module*.





Practice 1.4B



Now, try what you have learned so far. Turn to pages 364 to 365 in *Pre-Calculus 12* and do questions 2a to 2d, 3c, 4c, 4d, 5c, 7d, 7h, 10, 12a to 12c, and 15ai.

You may check your practice work by turning to the *Appendix* section of the *Module*.

Questions 2a to 2d, page 364

a.

My solution	My corrections if needed

b.

My solution	My corrections if needed

c.

My solution	My corrections if needed

d.

My solution	My corrections if needed

Questions 3c, page 364

c.

My solution	My corrections if needed

Questions 4c and 4d, page 364

c.

My solution	My corrections if needed

d.

My solution	My corrections if needed

Question 5c, page 364

c.

My solution	My corrections if needed

Questions 7d and 7h, page 364

d.

My solution	My corrections if needed

h.

My solution	My corrections if needed

Question 10, page 364

My solution	My corrections if needed

Questions 12a to 12c, page 365

a.

My solution	My corrections if needed

b.

My solution	My corrections if needed

c.

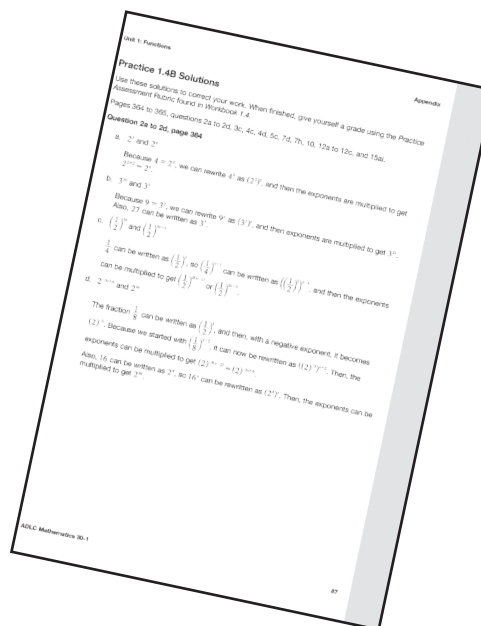
My solution	My corrections if needed

Questions 15ai, page 365

ai.

My solution	My corrections if needed

Turn to *Practice 1.4B Solutions* in the *Appendix* in *Unit 1 – Part 2*. Use the solutions to check your work and make corrections. Next, use the Practice Assessment rubric found on page 1 to give yourself a grade. **Record your grade on the cover of this booklet.** When complete, continue in *Explore Your Understanding Assignment 1.4*.





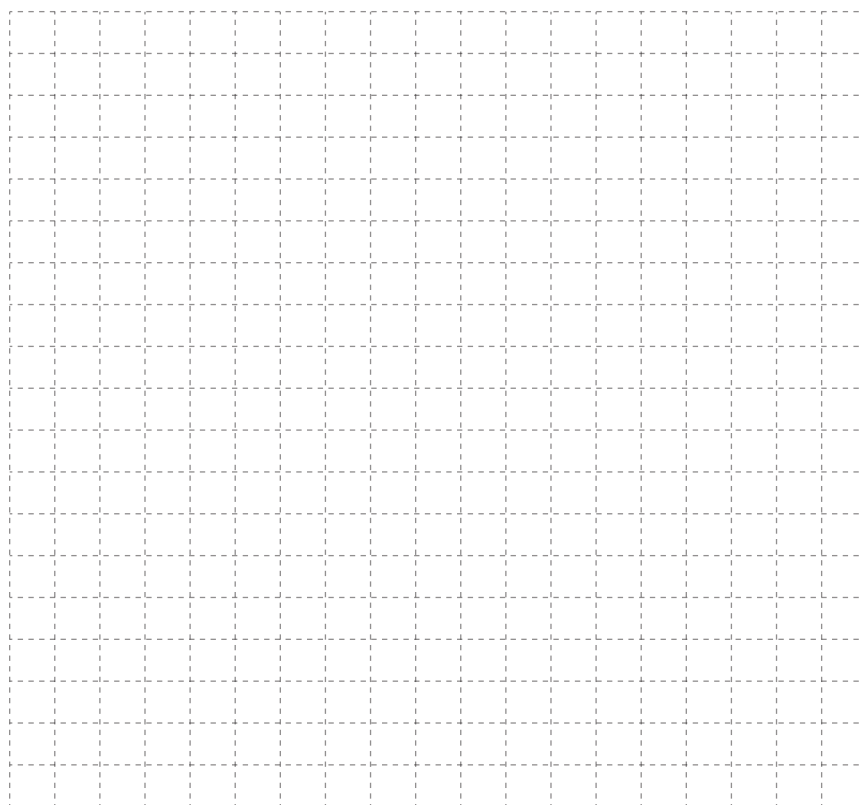
Explore Your Understanding Assignment 1.4

This assignment is worth 15 marks. You are expected to complete **13 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 15 marks worth of work, your assignment total will be 15 instead of 13. 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 questions.

1. Consider the function $f(x) = 2\left(\frac{1}{3}\right)^x$.

1

- a. Sketch a graph of $y = f(x)$.



- 3 b. Complete the following table for the function $f(x) = 2\left(\frac{1}{3}\right)^x$ and its graph.

Asymptote(s)	
Zero(s)	
x -intercept(s)	
y -intercept	
Domain	
Range	

2. Dana has predicted the value of her car in the first few years of ownership using a function of the form $y = ab^x$.

Years After Purchase	Value
0	\$25 500.00
1	\$21 675.00
2	\$18 423.75
3	\$15 660.19

- 1 a. Is this an example of exponential growth or exponential decay. Explain.

- 2 b. What are the values of a and b in $y = ab^x$?

①

c. Predict the value of the car 8 years after purchase.

②

3. Solve $81^{x+1} = \frac{27^{3x}}{9^{\frac{21}{2}}}$ using common bases.

①

4. A particular colony of bacteria is being grown in a petri dish, and is expected to double every hour and a half. A biologist predicts the colony will eventually cover the petri dish. How many minutes will elapse between the time when the petri dish is half full and when it is completely full?

5. Noah has invested \$2 000 in an account that earns an annual interest rate of 3% per year, compounded quarterly.

①

a. Write the exponential function to represent the amount of money Noah has at time t , where t is in years.

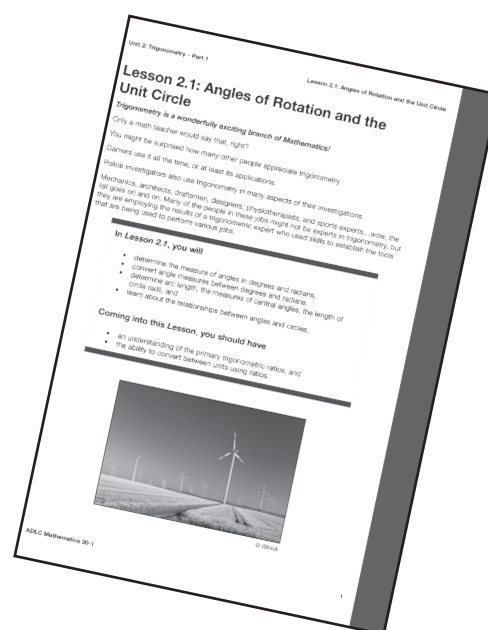
①

b. How much will the investment be worth after 4 years?

2

- c. Determine the length of time required for Noah's investment to grow to at least \$2 900.
(Hint: The value of the investment only increases every quarter. Your answer should reflect this.)

When this workbook is complete, submit it using a method described at the beginning of this *Workbook*. Next, complete *Test Your Understanding Quiz 1.4* online in Moodle. When complete, return to the *Module* and begin *Lesson 2.1*.



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