ALBERTA DISTANCE LEARNING CENTRE
Mathematics 30-1
MAT3791
Workbook 3.1

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 3.1A	**I have ____ /8 and ____%**		
Practice 3.1B	**I have ____ /8 and ____%**		
Practice 3.1C	**I have ____ /8 and ____%**		
Practice 3.1D	**I have ____ /8 and ____%**		
Explore Your Understanding 3.1			

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 3.1

4601 - 63 Avenue
Barrhead, Alberta Canada T7N 1P4

Printed in Canada

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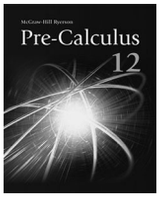

Pre-Calculus 12
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Explore Your Understanding Assignment 3.1

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.

(2) 1. a. Complete the following table by describing the how each replacement will change the graph of $y = f(x)$.

Change in $y = f(x)$	**Change(s) to the graph of $y = f(x)$**
Replace x with $x - h$	
Replace y with $y - k$	
Replace y with $\frac{1}{a}y$	
Replace x with bx	

(2) b. Starting with $y = f(x)$, show that $y = af(b(x - h)) + k$ can be derived from the information in the table in part a. (Hint: If your brackets don't match exactly, try reading part c.)

(1) c. Use the response to part b. to explain why the statement "stretch and reflect before translating" applies to $y = af(b(x-h))+k$.

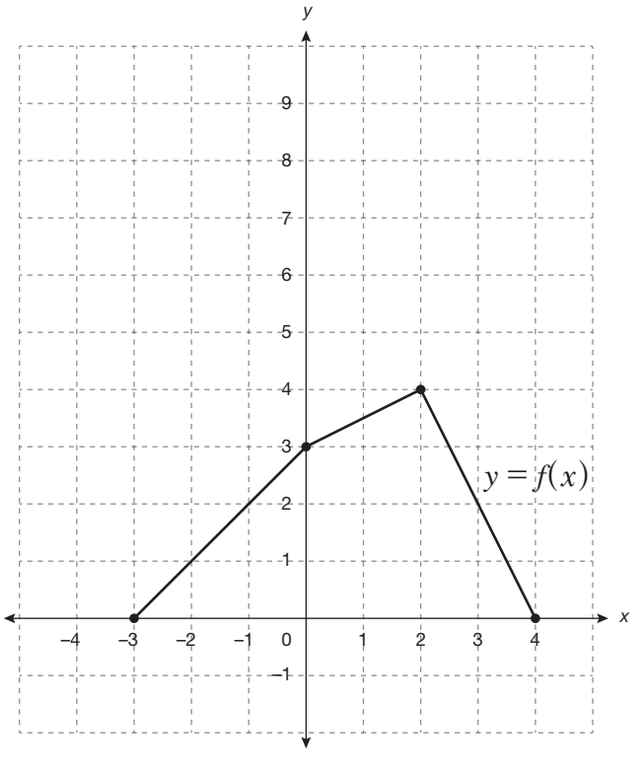
2. The graph of $f(x)=(x-2)^2$ is transformed to $y=f(x+5)-4$.

(1) a. Determine the vertex of the graph of $y=f(x)$ and the vertex of the graph of the transformed function.

(1) b. The point $(6,16)$ lies on the graph of $y=f(x)$. Determine the corresponding point on the graph of the transformed function.

(1) c. The point $(-1,0)$ lies on the graph of the transformed function. What is the corresponding point on the graph of the original function $y=f(x)$?

3. The graph of $y = f(x)$ is shown below.



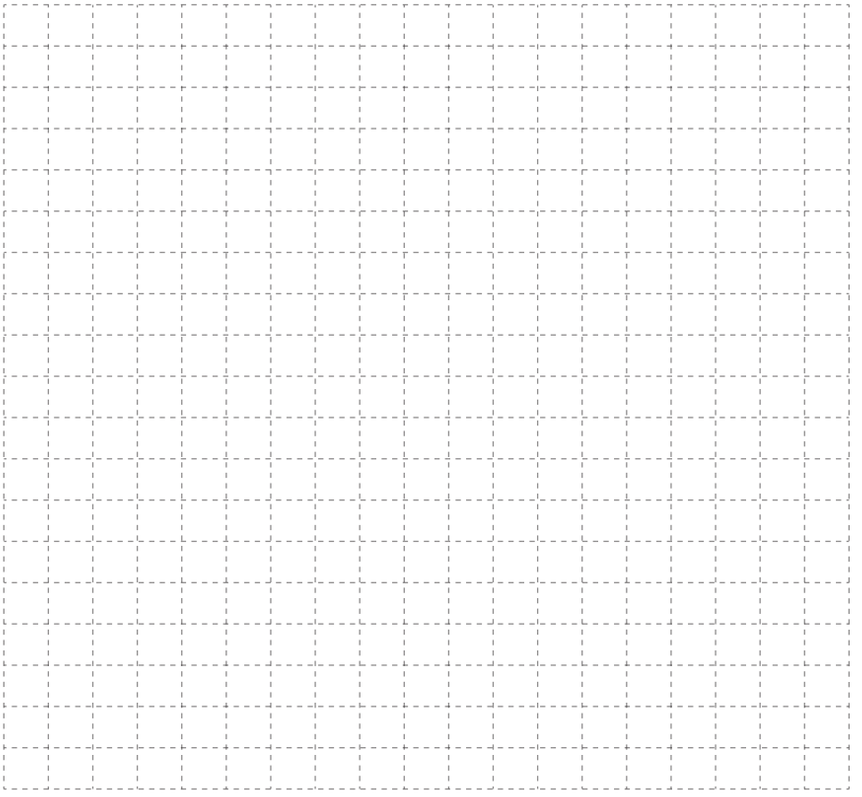
(1) a. Determine the domain and range of $y = f(x)$.

(1) b. On the grid, sketch the graph of $y = 2f(-x)$.

(1) c. Determine the domain and range of $y = 2f(-x)$.

4. The graph of $f(x) = x^2$ has been transformed so it has a vertex at $(4, -1)$, opens down, and passes through the point $(5, -3)$.

(1) a. Sketch both parabolas on the grid provided.

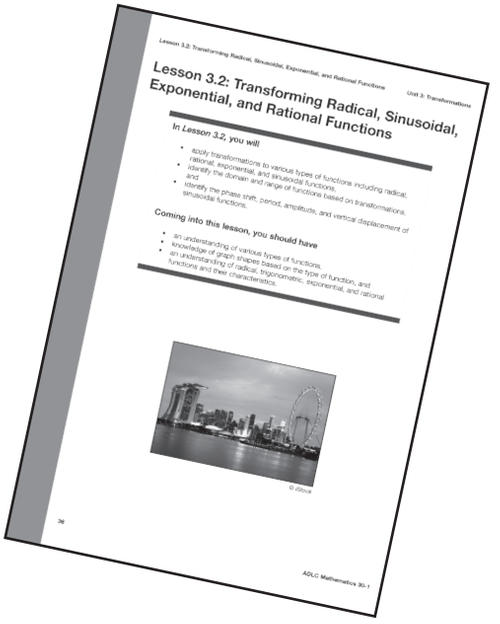


(2) b. Determine an equation of the transformed function.

(1) c. In words, describe the transformations that occurred.

(2) 5. If the point $(4,7)$ lies on the graph of $2y+2=f\left(\frac{1}{5}(x-1)\right)$, what is the corresponding point on the graph of $y=f(x)$?

When this workbook is complete, submit it using a method described at the beginning of this *Workbook*. Next, complete *Test Your Understanding Quiz 3.1* online in Moodle. When complete, return to the Module and begin *Lesson 3.2*.


Lesson 3.2: Transforming Radical, Sinusoidal, Exponential, and Rational Functions Unit 3: Transformations

Lesson 3.2: Transforming Radical, Sinusoidal, Exponential, and Rational Functions

In *Lesson 3.2*, you will

- apply transformations to various types of functions including radical, rational, exponential, and sinusoidal functions,
- identify the domain and range of functions based on transformations, and
- identify the phase shift, period, amplitude, and vertical displacement of sinusoidal functions.

Coming into this lesson, you should have

- an understanding of various types of functions,
- knowledge of graph shapes based on the type of function, and
- an understanding of radical, trigonometric, exponential, and rational functions and their characteristics

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Revised May 2019