ALBERTA DISTANCE LEARNING CENTRE

Mathematics 30-1

MAT3791

Workbook 5

Student's Questions and Comments

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Student Name:

_____

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Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Marks	Percent
Practice 5.1	**I have ____ /8 and ____%**		
Practice 5.2	**I have ____ /8 and ____%**		
Practice 5.3	**I have ____ /8 and ____%**		
Explore Your Understanding 5			

Teacher's Comments:

_____

Teacher's Signature

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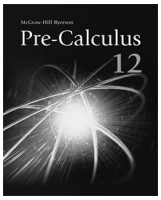

Pre-Calculus 12
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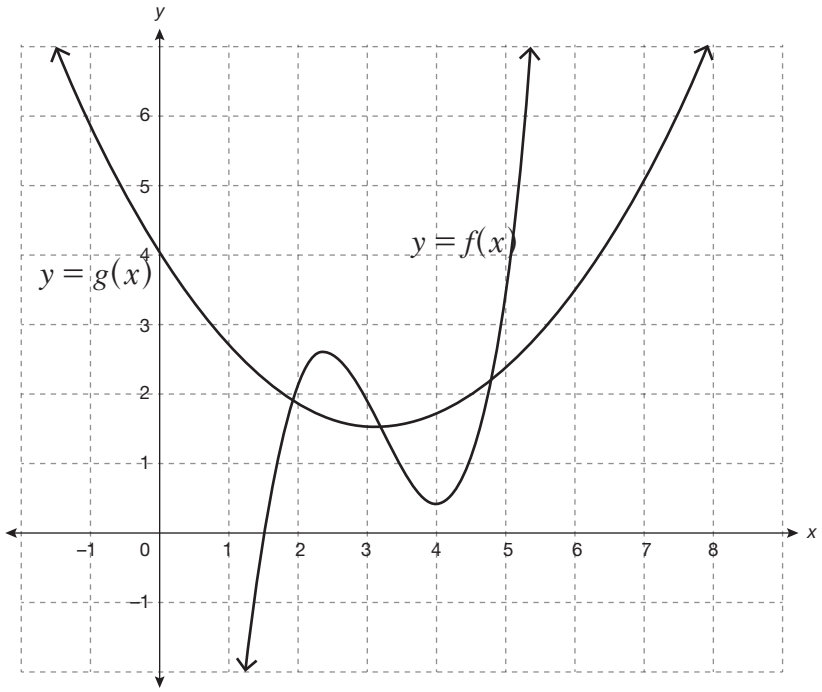
Explore Your Understanding Assignment 5

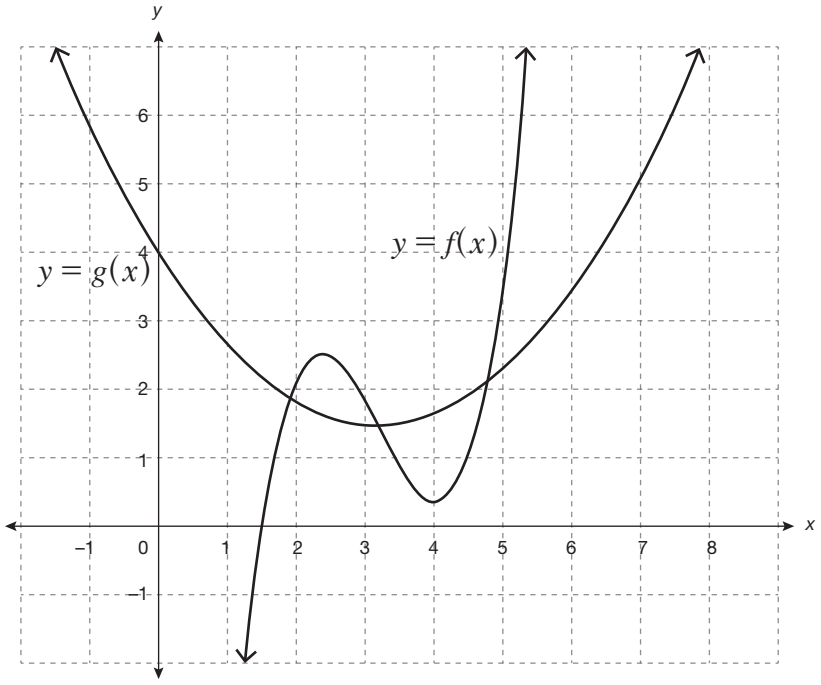
This assignment includes 19 marks. You are expected to complete **16 marks** worth of work. If you complete more than this, all completed questions will be used to assign a grade. For example, if you complete all 19 marks worth of work, your assignment total will be 19 instead of 16. You can also complete 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) 1. Use the graphs of $y = f(x)$ and $y = g(x)$ to sketch the graph of $y = h(x)$ in each case.

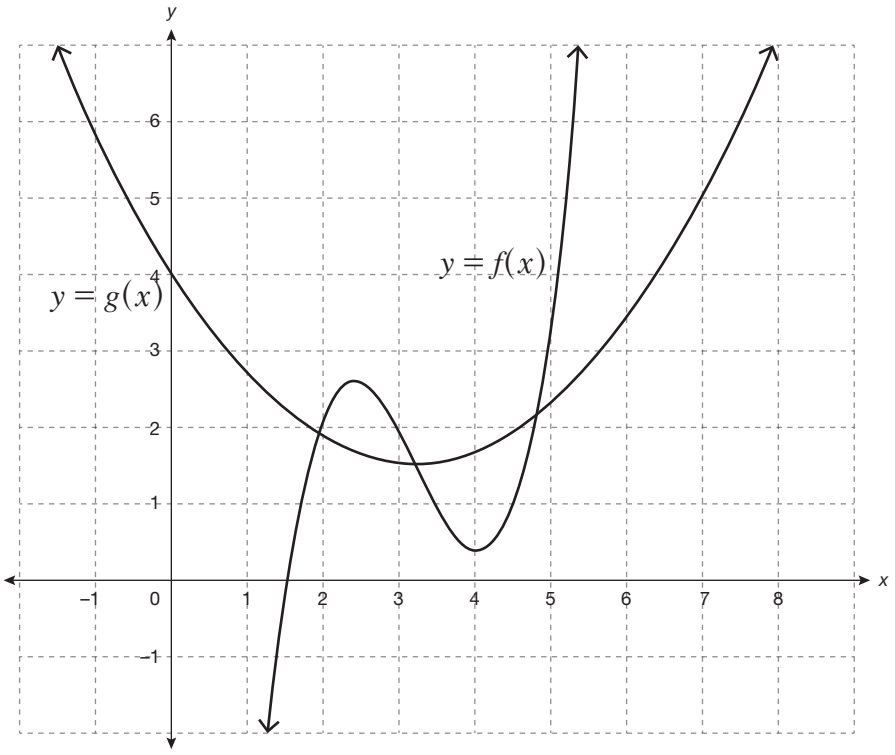
a. $h(x) = (f + g)(x)$



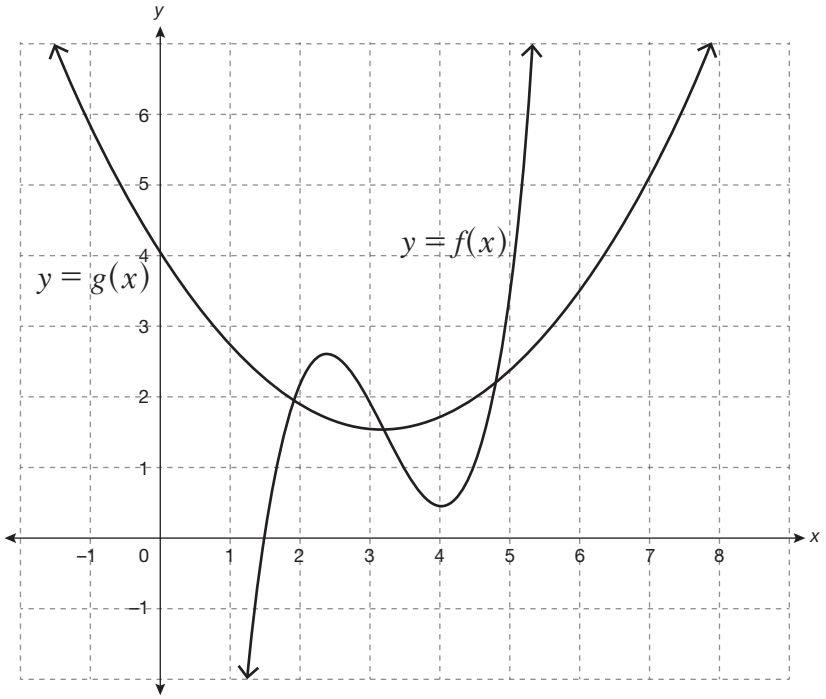
(1) b. $h(x) = (g - f)(x)$



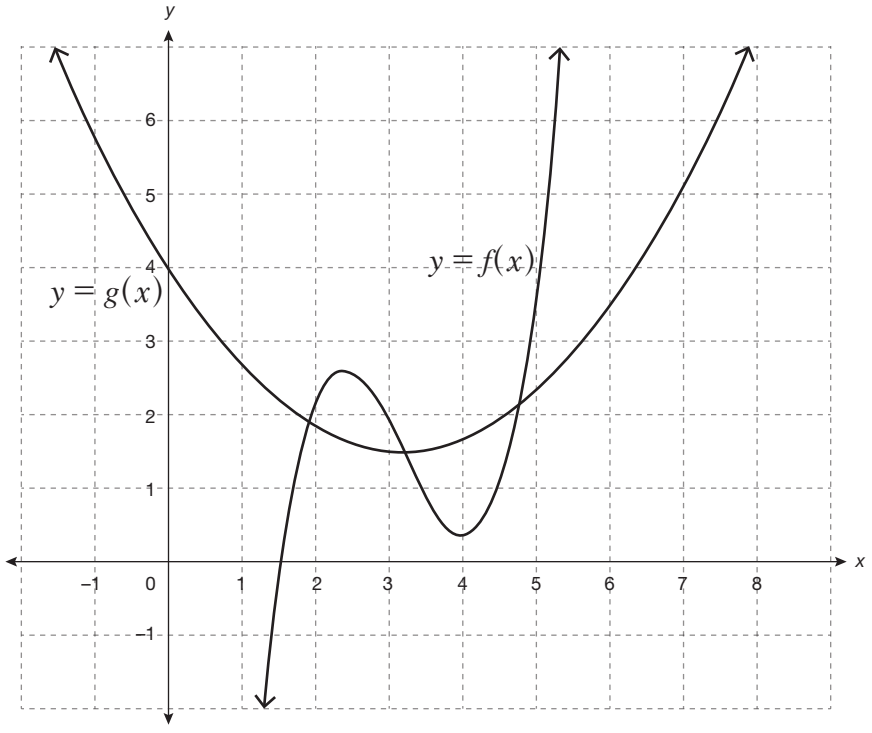
(1) c. $h(x) = (f \bullet g)(x)$



(1) d. $h(x) = \left(\frac{f}{g}\right)(x)$



(1) e. $h(x) = (g \circ f)(x)$ [Hint: see the Composition of Functions interactive activity in the Unit 5 section of Additional Resources.]



2. Two functions are given as $f(x) = (x + 5)^2$ and $g(x) = x^2 + 7x + 10$.

(2) a. Determine $h(x) = \left(\frac{g}{f}\right)(x)$ in simplest form.

(1) b. State the domain and range of $h(x)$.

(1) 3. a. If $f = \{(1,4),(2,7),(3,1)\}$, determine $(f \circ f)(3)$ and explain.

(2) b. If $g(x) = \sqrt{x}$ and $h(x) = x^2$, determine $(g \circ h)(x)$ and $(h \circ g)(x)$.
[Hint: $(g \circ h)(x) \neq (h \circ g)(x)$]

(1) c. Determine the domain and range of $(g \circ h)(x)$ and $(h \circ g)(x)$.

4. A function is given as $f(x) = 9x^2 + 3x$.

(2) a. If $f(x) = (g \bullet h)(x)$, state two possible pairs of equations for $g(x)$ and $h(x)$.

(2) b. If $f(x) = (g \circ h)(x)$, state two possible pairs of equations for $g(x)$ and $h(x)$.

5. On a particular day, the function $y(c) = 99.3c$ converted Canadian dollars to Japanese yen. That same day $e(y) = 0.0074y$ converted Japanese yen to euros.

(1) a. Write a composite function to convert Canadian dollars to euros for that day.

(1) b. Convert $\$500\ \text{CAD}$ to euro.

(1) c. State and explain any restrictions on the composite function in part a.

When this workbook is complete, submit it using a method described at the beginning of this *Workbook*. Next, complete *Test Your Understanding Quiz 5.1* online in Moodle. When complete, return to the *Module* and begin *Lesson 6.1*.

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