



**Canadian
International
School of
Egypt**

**FINAL EXAMINATION - MHF4U
JUNE 2015**

Date: Monday, June 8th, 2015
Length: 8:50 – 11:20 (2.5 hours)
Location: Room 46
Pages: 14 (including this one)
Subject: Grade 12 Advanced Functions (MHF4U)
Teacher: Mrs. Bethany Hufnagel
Student Name: _____

Evaluation:

Part A: Multiple Choice	30	
Part B: Full Answer	55	
Total Marks	85	

Instructions:

- All responses must be written on the examination paper.
- Follow the instructions for each section.
- Read each question carefully and look at the marking scheme for each question.
- Show all your work for your calculations and short answers.
- Calculators and rulers are allowed to be used during this examination.
- No sharing equipment with other students.
- Make sure your exam has all of the pages.
- Neatness and organization are important.

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PART A: MULTIPLE CHOICE

Answer the following questions on the provided answer sheet. It is suggested that you first answer the questions on the exam, and then transfer the answers over when finished. **Only the answer sheet will be marked.**



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PART B: FULL ANSWER

Read the questions carefully and complete in the space provided. Show all of your work. The marking scheme is on the left side of the question, so use that to determine where to spend your time.



MULTIPLE CHOICE ANSWER SHEET

NAME: _____

Print the letter of the best answer next to the question number.

Question #	Answer	Question #	Answer
1		16	
2		17	
3		18	
4		19	
5		20	
6		21	
7		22	
8		23	
9		24	
10		25	
11		26	
12		27	
13		28	
14		29	
15		30	



FORMULAS

<u>Pythagorean Identity:</u> $\sin^2 x + \cos^2 x = 1$	<u>Quotient Identity:</u> $\tan x = \frac{\sin x}{\cos x}$	<u>Periodic Identities:</u> $\sin x = \sin(x + 2\pi)$ $\cos x = \cos(x + 2\pi)$ $\tan x = \tan(x + \pi)$	<u>Cofunction Identities:</u> $\sin x = \cos\left(\frac{\pi}{2} - x\right)$ $\cos x = \sin\left(\frac{\pi}{2} - x\right)$ $\tan x = \cot\left(\frac{\pi}{2} - x\right)$
<u>Reciprocal Identities:</u> $\csc x = \frac{1}{\sin x}$ $\sec x = \frac{1}{\cos x}$ $\cot x = \frac{1}{\tan x}$	$\sin x = \frac{1}{\csc x}$ $\cos x = \frac{1}{\sec x}$ $\tan x = \frac{1}{\cot x}$	<u>Parity Identities:</u> $\sin(-x) = -\sin x$ $\csc(-x) = -\csc x$ $\cos(-x) = \cos x$ $\sec(-x) = \sec x$ $\tan(-x) = -\tan x$ $\cot(-x) = -\cot x$	
<u>Compound Angle Identities:</u> $\sin(x + y) = \sin x \cos y + \cos x \sin y$ $\cos(x + y) = \cos x \cos y - \sin x \sin y$ $\tan(x + y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$			
$\sin(x - y) = \sin x \cos y - \cos x \sin y$ $\cos(x - y) = \cos x \cos y + \sin x \sin y$ $\tan(x - y) = \frac{\tan x - \tan y}{1 + \tan x \tan y}$			
<u>Double Angle Identities:</u> $\sin(2x) = 2\sin x \cos x$ $\cos(2x) = \cos^2 x - \sin^2 x$ $= 2\cos^2 x - 1$ $= 1 - 2\sin^2 x$ $\tan(2x) = \frac{2\tan x}{1 - \tan^2 x}$			