

MCR3U – Fall 2023 – Mckay Unit 5 Summative – Trig Part 2

Name:	
Date:	
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1) Simplify the following trigonometric expressions. [3, 2 Marks]

a)
$$\frac{x+x)(\sin x)}{x}$$

b)
$$\sec sec \cos + \sec sec \sin$$

2) Prove the following Trig Identity Clearly do the work for the left side and right side separately. **[5 Marks]**

$$\sin \sin x \cdot \tan \tan x + \frac{\sin \sin x}{\tan \tan x} = \frac{1}{\cos \cos x}$$

- 3) For each of the following questions, follow the directions carefully and be sure to show all work. **DO NOT USE A MAPPING STATEMENT FOR QUESTION A**
- a) For the following function, graph its parent function, and **each individual transformation**. Make a clear and concise legend depicting each individual transformation. Draw two complete cycles of the graph and ensure your axis are clearly labelled. Fill in the table according to the **transformed function**. **[6 Marks]**

$$y = \frac{1}{2}\sin \sin [2(x + 45)] + 2$$

Domain	
Range	
Maximum	
Minimum	
Period	
	-

Legend:

	\exists	\neg												
	\neg	\neg												
	\neg	\neg												
	\neg	\neg												
	\dashv	\neg												
	\dashv	\dashv												

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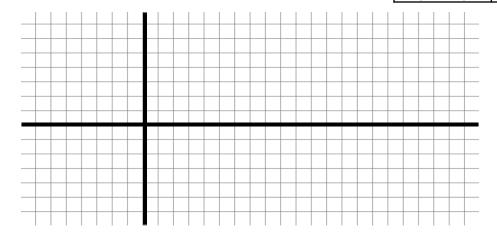
Name:	
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b) For the following function, graph its parent function, and fill out the table with a **MAPPING STATEMENT** for each transformation. Draw two complete cycles of the graph and ensure your axis are clearly labeled. Fill in the table according to the **transformed function**.

[6 Marks]

$$y = -\cos\cos\left[\frac{1}{2}\theta + 45^{\circ}\right] - 1$$

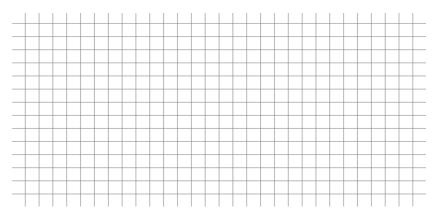
(θ°, y)		
(0, 1)		
(90, 0)		
(180, -1)		
(270, 0)		
(360. 1)		



Domain	
Range	
Maximum	
Minimum	
Period	

4) A Ferries wheel with a diameter of 80 meters takes 15 minutes to get from the bottom to the top of the ride. The bottom of the wheel is 3 meters above the ground. A person gets on at t=0 on the bottom of the ride and is on the ride for two complete cycles.

a) Sketch a graph of the person's height as a function of time in minutes. [2 Marks]



b) Develop the equation that represents a person's height about the ground as a function of time. [2 Marks]

c) At what time(s) in the first 15 minutes is a person 25 meters off the ground? Round your answer to the nearest tenth of a meter. [3 Marks]