Last Name: SOLUTIONS

First Name: _____

Student ID: _____

Quiz 8

Question 1. Find the derivatives of the following functions (you do not have to simplify your final answer).

(a) *(4 marks)* $f(t) = \sin^2(e^{\sin^2 t})$ $= \left[\sin\left(e^{(\sin t)^2}\right)\right]^2$

$f'(t) = 2\left[\sin\left(e^{(\sin t)^2}\right)\right] \cdot \cos\left(e^{(\sin t)^2}\right) \cdot e^{(\sin t)^2} \cdot 2\sin t \cdot \cos t$

(b) *(4 marks)* $F(\theta) = \arcsin\sqrt{\sin\theta}$

$F'(\theta) = \dfrac{1}{\sqrt{1-(\sqrt{\sin\theta})^2}} \cdot \frac{1}{2}(\sin\theta)^{-1/2} \cdot \cos\theta$

Question 2. *(2 marks)* Find the exact value of $\sin^{-1}(\sin(7\pi/3))$.

$\sin^{-1}(\sin 7\pi/3) = \sin^{-1}\left(\sqrt{3}/2\right) = \pi/3$