

Last Name: SOLUTIONS

First Name: _____

Student ID: _____

Quiz 1 (A)

Question 1. Find the following:

(a) (1 marks) $\frac{d}{dx}(\tan x) = \sec^2 x$

(b) (1 marks) $\frac{d}{dx}(\arctan x) = \frac{1}{1+x^2}$

(c) (1 marks) $\frac{d}{dx}(\sec x) = \sec x \tan x$

(d) (1 marks) $\int \csc^2 x dx = -\cot x + C$

(e) (1 marks) $\int \tan x dx = -\ln |\cos x| + C$

(f) (1 marks) $\int \csc x \cot x dx = -\csc x + C$

Question 2. (4 marks) Find the following:

$$\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx = \int \frac{e^u}{\frac{1}{\sqrt{x}}} \cdot 2\sqrt{x} du$$

$$= 2 \int e^u du = 2e^u + C$$

$$= 2e^{\sqrt{x}} + C$$

$$\begin{aligned} \text{LET } u &= \sqrt{x} \\ du &= \frac{1}{2} x^{-1/2} dx \\ 2\sqrt{x} du &= dx \end{aligned}$$