

Last Name: SOLUTIONS

First Name: _____

Student ID: _____

Quiz 1 (B)

Question 1. Find the following:

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

(b) (1 marks) $\frac{d}{dx}(\arcsin x) = \frac{1}{\sqrt{1-x^2}}$

(c) (1 marks) $\frac{d}{dx}(\cos x) = -\sin x$

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

(e) (1 marks) $\int \cot x dx = \ln|\sin x| + C$

(f) (1 marks) $\int \sec^2 x dx = \tan x + C$

Question 2. (4 marks) Find the following:

$$\int \frac{\sqrt{\ln x}}{x} dx = \int \frac{\sqrt{u}}{x} x du$$

$$= \int u^{1/2} du = \frac{u^{3/2}}{3/2} + C$$

$$= \frac{2}{3} u^{3/2} + C = \frac{2}{3} (\ln x)^{3/2} + C$$

$$\text{Let } u = \ln x$$

$$du = \frac{1}{x} dx$$

$$x du = dx$$