

Last Name: Soltors

First Name: _____

Student ID: _____

Quiz 1 (A)

Question 1. Find the following derivatives:

(a) (1 mark) $\frac{d}{dx}(\cot x) = -\csc^2 x$

(b) (1 mark) $\frac{d}{dx}(3^x) = 3^x \ln 3$

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

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

Question 2. Find the following antiderivatives:

(a) (1 mark) $\int \tan x \, dx = -\ln|\cos x| + C$

(b) (1 mark) $\int \csc x \cot x \, dx = -\csc x + C$

(c) (2 marks) $\int \frac{1+x}{x^2} \, dx = \int x^{-2} + \frac{1}{x} \, dx = -x^{-1} + \ln|x| + C$

(d) (1 mark) $\int \frac{1}{1+x^2} \, dx = \arctan x + C \quad \Bigg| \quad = -\frac{1}{x} + \ln|x| + C$