Dawson College: Calculus II: 201-NYB-05-S2: Winter 2010

Name: Y. LAMONTAGNE
Student ID: _____

Quiz 1

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. *(1 mark each)* Differentiate the following functions:

a.

$f(x) = \frac{1}{x^{1/7}} = x^{-1/7}$ $\quad f'(x) = -\frac{1}{7}x^{-8/7}$

b.

$f(x) = \cos x$ $\quad f'(x) = -\sin x$

c.

$f(x) = \tan x$ $\quad f'(x) = \sec^2 x$

d.

$f(x) = e^x$ $\quad f'(x) = e^x$

e.

$f(x) = \csc x$ $\quad f'(x) = -\csc x \cot x$

f.

$f(x) = \arcsin x$ $\quad f'(x) = \frac{1}{\sqrt{1-x^2}}$

Question 2. *(2 marks each)* Differentiate the following functions *(do not simplify)*:

a.

$f(x) = \operatorname{arcsec}(\arctan x)$ $\quad f'(x) = \frac{1}{\arctan x \sqrt{(\arctan x)^2 - 1}} \cdot \frac{1}{1+x^2}$

b.

$f(x) = \frac{\cot x}{\sec 2x}$ $\quad f'(x) = \frac{-\csc^2 x \sec 2x - \cot x \sec 2x \tan 2x\,(2)}{(\sec 2x)^2}$