Calculus 1, Handwritten Homework 7 — Spring 2022

NAME _____ STUDENT NUMBER _____

Write in complete sentences and use correct notation (such as equal signs). Give justifications for your claims using the definitions and theorems in the notes and book (quote them by name or number, as is done in the examples in the notes and videos, and in the solutions posted online). Give precise values, not numerical (calculator) approximations. If provided, put your final answer in the box. Each numbered problem is worth 5 points. Print out this document, work the problem, scan your solutions, and submit the scan of (in PDF) to the D2L DropBox by the deadline. See the online syllabus for deadlines. **Do not copy work from others or from the internet! This will result in you being charged with academic misconduct.**

1. Find the equations of the lines **(a)** tangent to and **(b)** normal to the curve $x^2 \cos^2 y - \sin y = 0$ at the point $(0, \pi)$. When differentiating, use the square bracket notation. This is Exercise 42 in Section 3.7.

2. Consider $y = \sqrt[3]{\dfrac{(4x-2)\sec x}{(x^2+1)(2x+3)}}$. Use logarithmic differentiation to find dy/dx. Use the square bracket notation.

3. Find dy/dx: $\ln xy = e^y \cot x$. Use the square bracket notation.