## MATH 1700: Assignment 3

DUE: 11:59 PM (CENTRAL TIME = TIME IN WINNIPEG), MONDAY, 20 MARCH 2017

(Late assignments will not be accepted)

Your paper with solutions has to be submitted as <u>one</u> PDF file with all pages clearly readable and placed in the file in the correct order. (Your paper may not be read and/or marked if these conditions are not met.)

All your answers have to be justified. Unjustified answers will receive little or no credit.

Note: this assignment covers sections 1.5, 3.5, 7.1-7.5.

- 1. Find the exact value of each expression (if it has a value). If it does not have a value explain why.
  - (a) (4 points)  $\sin^{-1}(\sin(3\pi/4))$
  - (b) (1 point)  $\sin(\sin^{-1}(3\pi/4))$
  - (c) (4 points)  $\cos^{-1}(\cos(-\pi/4))$
  - (d) (1 point)  $\tan(\tan^{-1}(100))$
- 2. (5 points) Equation  $\sin^{-1}(xy) = 3x + 2y$  implicitly defines y as a function of x. Find dy/dx.

In problems 3-13, evaluate the indefinite integral.

3. (5 points) $\int \ln(x^2+1) dx$
4. (5 points) $\int \cos^{-1} x  dx$
5. (5 points) $\int \tan^{-1} \sqrt{x}  dx$
6. (5 points) $\int \frac{\tan^3 x}{\sec^4 x} dx$
7. (5 points) $\int \frac{1}{\cos^4 x} dx$
8. (5 points) $\int \sqrt{-x^2 + 6x}  dx$
9. (5 points) $\int \frac{x^2}{x^2 + 3x + 2} dx$
10. (5 points) $\int \frac{\sin x}{\cos x (1 + \cos^2 x)}  dx$
11. (5 points) $\int \sin x \cdot \cos 2x  dx$
12. (5 points) $\int \frac{2-\sqrt{x}}{\sqrt{x}+5} dx$
13. (5 points) $\int \sin(\ln x)  dx$
-1 $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$

Question:	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Points:	10	5	5	5	5	5	5	5	5	5	5	5	5	70
Score:														