MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

ASSIGNMENT 7 **MATHEMATICS 1001** WINTER 2023

Due: Monday, April 3rd at 11:59pm. See the Gradescope Handout for submission information.

> **Note:** You should complete the WebAssign problem sets "Integrals by Partial Fractions', "Trigonometric Integrals" and "Integrals by Trigonometric Substitution", as well as Worksheet 3.1, 3.2 and 3.3, before you work on this assignment.

1. Use any integration strategy introduced in this course to evaluate each of the following.

   (a) $\displaystyle \int x \cos^2(x)\, dx$

   (b) $\displaystyle \int \frac{2x+3}{x^3 - 3x^2 + 4x - 12}\, dx$

   (c) $\displaystyle \int \frac{\sin^7(x)}{\sqrt{\cos(x)}}\, dx$

   (d) $\displaystyle \int_{\frac{\sqrt{2}}{2}}^{\frac{\sqrt{3}}{2}} \frac{x^3}{\sqrt{1-x^2}}\, dx$