## MEMORIAL UNIVERSITY OF NEWFOUNDLAND

## DEPARTMENT OF MATHEMATICS AND STATISTICS

Assignment 3

## **MATHEMATICS 1001**

Fall 2025

Due: Monday, October 8th, 2025 at 6:00pm. Show all work. See the Gradescope Handout for submission information.

**Note:** You should complete the WeBWorK problem sets "Inverse Trigonometric Indefinite Integrals" and "Indefinite Integrals by Parts", as well as Worksheets 1.3 and 1.4, before you work on this assignment.

1. Evaluate each of the following integrals which give rise to inverse trigonometric functions.

(a) 
$$\int \frac{1}{x \ln(x) \sqrt{\ln^2(x) - 1}} dx$$

(b) 
$$\int \frac{1}{9y^2 - 30y + 29} \, dy$$

2. Use integration by parts to evaluate the following indefinite integrals.

(a) 
$$\int x^2 \cos(5x) \, dx$$

(b) 
$$\int \frac{\ln(x)}{\sqrt{x}} \, dx$$

(c) 
$$\int \arcsin(3t) dt$$