

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

MIDTERM TEST

MATHEMATICS 1001-003

MARCH 8TH, 2023

Name

MUN Number

[15] 1. Evaluate each of the following integrals.

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

(b) $\int x^2 \cos(x) dx$

(c) $\int \frac{\cos(x) + 1}{\cos^2(x)} dx$

- [25] 2. Evaluate **FIVE** of the following integrals. (If you evaluate all six, only your best five will count towards your mark.)

(a) $\int \frac{\cosh(3x)}{\sinh^2(3x) + 25} dx$

(b) $\int x \left(\frac{1}{3}x + 5 \right)^7 dx$

(c) $\int \frac{18x^3 - 15x^2 + 2}{3x - 1} dx$

$$(d) \int \frac{1}{x \ln(x) \sqrt{\ln^2(x) - 4}} dx$$

$$(e) \int e^{\sqrt{x}} dx$$

$$(f) \int \frac{1}{\sqrt{27 + 12x - 4x^2}} dx$$