

# MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

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BASIC INTEGRATION

Math 1001 Worksheet

FALL 2019

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**For practice only. Not to be submitted.**

1. Evaluate each of the following integrals using any combination of elementary integrals, integrals leading to inverse trigonometric functions,  $u$ -substitution and integration by parts.

(a)  $\int \frac{x}{\sqrt{x^2 - 9}} dx$

(b)  $\int \frac{1}{x\sqrt{x^2 - 9}} dx$

(c)  $\int x \csc^2(9x) dx$

(d)  $\int x^4 e^{x^5} dx$

(e)  $\int x^9 e^{x^5} dx$

(f)  $\int \frac{1}{9x^2 - 12x + 8} dx$

(g)  $\int e^{4x} \cos(x) dx$

(h)  $\int \frac{12x^2 - 32x + 14}{2x - 5} dx$

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

(j)  $\int \cos^2(x)[1 + \tan^2(x)] dx$