

MATH6103 Differential & Integral Calculus
MATH6500 Elementary Mathematics for Engineers

Problem Sheet 6

Deadline: **Monday 23 November, 5:00.**

Hand in to **drop box 5** in the undergraduate common room (maths department, room 502).

Hand in the questions marked with an asterisk (*).

One mark will be deducted if you do not **staple your work.**

1) Find:

a) $\int x \cos x \, dx$

b) $\int 5y \ln y \, dy$

c) $\int_0^1 te^t \, dt$

d) $\int e^x \sin x \, dx$

e) $\int \frac{4}{(x+1)(x-2)} \, dx$

f) $\int_1^2 \frac{5x+2}{(x-1)(x+2)} \, dx$

2) Find

$$\int \frac{x}{x^2-1} \, dx$$

by two different methods.