# TD 8 – CALCULUS

(1) Determine an anti-derivative for the following functions:

   (a) $(2x+1)\cdot\exp(x)$,

   (b) $(5x^2+1)\cdot\cos(x)$,

   (c) $(3x^2+2x+1)\cdot\exp(ax)$ for some constant $a \neq 0$.

(2) Find the antiderivative of the function $x^2e^x$ which has a zero at $a$ (for some fixed constant $a$).

(3) Determine the value of the following integrals:

   (a) $\int_0^{\pi/2}(-x^2+x+1)\cdot\sin(x)\,dx$,

   (b) $\int_0^x t\cdot e^t\,dt$.