Name: **Tutorial time:**

1. Compute the following indefinite integrals (antiderivatives):

   (a) $\displaystyle \int \frac{1 - \sin^2 x}{\cos x}\, dx$

   (b) $\displaystyle \int \frac{e^x + 1}{e^x}\, dx$

   (c) $\displaystyle \int x e^{x^2}\, dx$

   (d) $\displaystyle \int \frac{\sin(\sqrt{x})}{\sqrt{x}}\, dx$

2. Evaluate the following definite integrals. (In some cases there may be shortcuts...)

(a) $\displaystyle\int_3^3 x^3 e^{\sin(x)} \sqrt{1 + x^2} \, dx$

(b) $\displaystyle\int_{-3}^3 x \cos(x^4 + 1) \, dx$

(c) $\displaystyle\int_0^3 (x^2 - 3x + 1) \, dx$

(d) $\displaystyle\int_1^9 x\sqrt{x^2 + 1} \, dx$

(e) $\displaystyle\int_0^1 e^x \sin(e^x) \, dx$