# Tutorial 7

1) Evaluate $\lim_{x \to 0} \frac{\tan x - \sin x}{\sin^3 x}$ (5)

2) Expand $\cosh x$ in the powers of $x$. (5)

3) Evaluate $\lim_{x \to 0} \left(\frac{a^x + b^x + c^x}{3}\right)^{1/x}$ (5)

4) Find the mass of the lamina bounded by the curves $y^2 = ax$ and $x^2 = ay$ if the density of the lamina at any point varies as the square of distance from the origin. (5)