KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
Math 442 Homework 2

Name:..ID:........................

Exercise #1: Show that for the functionals $J[y] = \int_a^b f(x,y)\sqrt{1+y'^2}\exp\left(\pm\tan^{-1}(y')\right)dx$ the transversality conditions reduce to the requirement that the curve $y = y(x)$ intersects the curves $y = \phi(x)$ and $y = \psi(x)$ along which the end points vary, at an angle of $45°$.