MATH 261 Quiz 9 Name: .
Student number:

Show all work. 5 points each.

1. If R is the region that lies above the x-axis and within the circle $x^2 + y^2 = 9$, **set up the integral**, including limits of integration, $\iint_R \cos(x^2 + y^2) dA$ by changing to polar coordinates.

2. Find the Jacobian of the transformation $x = e^{-r} \sin(\theta)$ and $y = e^r \cos(\theta)$.