

## Surfaces - HW Problems

1. Find an equation of the tangent plane to the surface given by

$$\vec{\Phi}(u, v) = (u \cos v, u \sin v, u); \quad u > 0, \quad 0 \leq v \leq 2\pi$$

(the upper half of a cone) at  $u = 1, \quad v = \frac{\pi}{2}$ .

2. Find an equation of the tangent plane to the helicoid given by

$$\vec{\Phi}(u, v) = (v \cos(u), v \sin(u), 2u), \quad \text{at the point } (\sqrt{2}, \sqrt{2}, \frac{\pi}{2}).$$