Gaussian Curvature and the Gauss-Bonnet Theorem- HW Problems

Calculate the Gauss curvature for the following surfaces.

1. $z = x^2 + y^2$

2. $z = x^2 - y^2$

3. $\vec{\Phi}(u, v) =< \cos(v), \sin(v), u >$

4. $\vec{\Phi}(u, v) =< u, \ v, \ u^2 >.$