숙제 #7 (5/12 까지)

1. p. 151 3-2) 6

2. p. 151 3-2) 8 a, b

3. On the paraboloid $z = x^2 + ky^2$, $k > 0$, at the point $p = (0,0,0)$, show that the unit vectors of the $x$-axis and the $y$-axis are eigenvectors of $dN_p$, with eigenvalues 2 and $2k$, respectively (assuming that $N$ is pointing outwards from the region bounded by the paraboloid).

4. On the paraboloid $z = x^2 + y^2$ with the parametrization $\mathbf{x}(u,v) = (u, v, u^2+v^2)$, find the normal curvature of the curve $\alpha(t) = \mathbf{x}(t^2, t)$ at $t = 1$.