(1) Let $e_1, \ldots, e_n$ be a basis of a vector space V.
Let $\eta, \theta \in \Lambda^k(V)$. prove that $\eta = \theta$ iff $\eta(e_{i_1}, \ldots, e_{i_k}) = \theta(e_{i_1}, \ldots, e_{i_k})$ for any $1 \leq i_1 < i_2 < \ldots < i_k$.

(2) prove that $\det(AB) = \det(A) \cdot \det(B)$ for any $n \times n$ matrices A, B.
Hint : Fix B and consider $f(A) = \det(AB)$.
Use that $\dim \Lambda^n(R^n) = 1$.

(3) Let F be a smooth vector field on R^3. Show that $div(curl(F)) = 0$