1. Let $M$ be a compact Riemann surface which has genus $g$ as a compact orientable surface. Prove that $H^0(M, \Omega^1_M)$ has dimension $g$. [You may assume known the result $H^1(M, \mathbb{Z}) \cong \mathbb{Z}^{2g}$.]

2. Let $\Lambda \subset \mathbb{C}^n$ be a lattice of rank $2n$ and let $M = \mathbb{C}^n/\Lambda$ be the quotient, a compact complex torus. Compute the Hodge numbers $h^{p,q}(M)$, including a complete justification of your calculation.

3. It is known that $S^3 \times S^3$ is a complex manifold (in infinitely many ways). Prove that none of these complex structures can be Kähler.