set of $f^*\pi^{-1}(\omega)$ is one-dimensional, and so $f^*\pi^{-1}(\omega)$ is nonvanishing. $\Rightarrow$ $K_A = \Lambda^2 T^{*\prime} A$ is trivial $\Rightarrow K_A = 0$. ⌟

By Riemann-Roch,
$$\chi(\mathcal{O}_A) = \frac{c_1^2 + c_2}{12} = 0,$$
so $q(A) = 2$; and from the classification theorem of Section 5, Chapter 4, we recognize that

A is an Abelian variety.

⌜ By the Riemann-Roch formula on P600,
$$\chi(\mathcal{O}_A) = \frac{c_1^2(A) + c_2(A)}{12}$$

But, by the Gauss-Bonnet Formula III, $c_2(A) = \chi(A) = 0$ since $\dim A = 2$, and $c_1(A) = c_1(T'A) = 0$ since $c_1(T^{*\prime}A) = c_1(\Lambda^2 T^{*\prime} A) = c_1(K_A) = -c_1(T'A) = 0$ by P407, P414 & P408.

$\Rightarrow \chi(\mathcal{O}_A) = 0 = h^{0,0}(A) - h^{0,1}(A) + h^{0,2}(A)$ since $A^{p,q}(V) = 0$ for $p > k$ or $q > k$, V k-dimensional variety, see P32.

$H^{0,0}(A) = H^0(A) = \mathbb{C}$ and $H^{0,2}(A) \cong H^0(A, \Omega^2)$ = Set of holomorphic 2-forms on $A \cong \mathbb{C}$ since $\Lambda^2 T^{*\prime} A \cong A \times \mathbb{C}$

$\Rightarrow$ The set of holomorphic 2-forms on A is isomorphic to the set of holomorphic functions on A, which is the set of constant functions. $\Rightarrow h^{0,2}(A) = 1$