Here A is the ring of all "skew polynomials" $\sum a_i x^i$ ($a_i \in$ C), multiplied according to the rule $xa = \sigma(a)x$ for $a \in$ C. Since $\sigma^2 = 1$, $x^2 a = \sigma^2(a) x^2 = a x^2$ for all $a \in$ C. This shows that R[x^2] $\subseteq Z(A)$. Conversely, consider any $f = \sum a_r x^r \in Z(A)$. From $fa = af$, we have $a_r \sigma^r(a) = a a_r$ for all $a \in$ C. Setting $a = i$, we see that $a_r = 0$ for odd r. Therefore, $f = \sum a_{2s} x^{2s}$. From $fx = xf$, we see further that $\sigma(a_{2s}) = a_{2s}$, so $f \in$ R[x^2].