Math266 Homework due Friday February 15

Prove the following results.

Result 1. For all $n \in \mathbb{Z}$, $n^2$ is odd if and only if $n$ is odd.

Result 2. $\forall n \in \mathbb{Z}$, $n^2 + n$ is even.
Result 3. \( \forall n \in \mathbb{Z}, \) if \( 2|n^2 - 1 \), then \( 8|(n^2 - 1) \). (hint: use Result 1 and 2.)