PRIME = "On input $p$:
1. If $p$ is even, accept if $p = 2$; otherwise, reject.
2. Select $a_1, \ldots, a_k$ randomly in $\mathbb{Z}_p^+$. 
3. For each $i$ from 1 to $k$:
4. Compute $a_i^{p-1} \mod p$ and reject if different from 1.
5. Let $p - 1 = st$ where $s$ is odd and $t = 2^h$ is a power of 2.
6. Compute the sequence $a_i^{s \cdot 2^0}, a_i^{s \cdot 2^1}, a_i^{s \cdot 2^2}, \ldots, a_i^{s \cdot 2^h}$ modulo $p$.
7. If some element of this sequence is not 1, find the last element that is not 1 and reject if that element is not $-1$.
8. All tests have passed at this point, so accept."

Source: Introduction to the Theory of Computation
by Michael Sipser