▶ **Exercise 9-3**

Prove that if a graph of order $3n$ ($n \geqslant 1$) havs n vertices of each of the degrees $n-1$, n, and $n+1$, then n is even.

Proof. Since the graph has n vertices of each of the degrees $n-1$, n, and $n+1$, the total degree of the graph is $n \cdot (n-1) + n \cdot n + n \cdot (n+1) = 3n^2$, which is an even number by the Euler formula. Obviously, this implies that n is even. □