ECE608, Fall 2013, Quiz 4

First Name: ___________________ Last Name: ____________________

I certify that I have neither given nor received unauthorized aid on this quiz.
Signed: ___________________

Answer the following questions. Your answers should be as simple as possible. You do not need to prove your answers.

(1) \( G = (V,E) \) is a finite undirected graph with \( V = \{ v_1, v_2, \ldots, v_n \} \) and \( E = \{ e_1, e_2, \ldots, e_m \} \).
   Complete the equality:
   \[
   \sum_{i=1}^{n} d(v_i) = 2m
   \]

(2) \( G = (V,E) \) is a finite directed graph with \( V = \{ v_1, v_2, \ldots, v_n \} \) and \( E = \{ e_1, e_2, \ldots, e_m \} \).
   Complete the equality:
   \[
   \sum_{i=1}^{n} d_{in}(v_i) = m
   \]

(3) \( G = (V,E) \) is a finite directed graph with \( V = \{ v_1, v_2, \ldots, v_n \} \) and \( E = \{ e_1, e_2, \ldots, e_m \} \).
   Complete the equality:
   \[
   \sum_{i=1}^{n} d_{out}(v_i) = m
   \]