Disco II - Quiz 7

Name:_____ Box #_____

In this quiz we will use the inclusion-exclusion principle to compute the number of graphs on 4 vertices $\{v_1, v_2, v_3, v_4\}$ with exactly m isolated vertices. Let c_i denote the condition

c_i: vertex v_i is ioslated.

Let S_i and E_i have the standard definitions.

1. Find the S_i:

$$S_0 =$$
$$S_1 =$$
$$S_2 =$$
$$S_3 =$$
$$S_4 =$$

2. Using the information above, compute the number of graphs with no isolated vertices:

$$E_0 = N(\overline{c_1}\,\overline{c_2}\,\overline{c_3}\,\overline{c_4}) =$$

3. Now, using the S_i's or by inspection, compute the following:

$$E_1 =$$
$$E_2 =$$
$$E_3 =$$
$$E_4 =$$