

Answers for the question of Exercise 5 of Network Theory.

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2.2. Compute both types of global clustering coefficient. Are they equal? Why?

They are equal, because basically they do the same calculation, they iterate over all triplets and triangles, its just first one is step wise, and second needs to do all the calculations on the whole data to give the result.

3. Consider only the global clustering coefficient defined in the second way in Task 2. What is the expected value of the global clustering coefficient C for $G(n, m)$? Please give the expression of C in terms of n and m .

$C_{rand} = p = \langle k \rangle / N$, where $\langle k \rangle$ is average degree and N is number of nodes.

Please give the degree distribution $P(d)$ for $G(n, m)$.

$$P(d=k) = \binom{n-1}{k} m^k (1-m)^{n-1-k}.$$