

Homework 4

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1

$$\begin{aligned} C_a &= \frac{2 * d_a}{m_a * (m_a - 1)} &= \frac{2 * 3}{4 * (4 - 1)} = \frac{1}{2} \\ C_b &= \frac{2 * d_b}{m_b * (m_b - 1)} &= \frac{2 * 1}{2 * (2 - 1)} = 1 \\ C_c &= \frac{2 * d_c}{m_c * (m_c - 1)} &= \frac{2 * 3}{4 * (4 - 1)} = \frac{1}{2} \\ C_d &= \frac{2 * d_d}{m_d * (m_d - 1)} &= \frac{2 * 1}{2 * (2 - 1)} = 1 \\ C_e &= \frac{2 * d_e}{m_e * (m_e - 1)} &= \frac{2 * 5}{4 * (4 - 1)} = \frac{5}{6} \\ C_f &= \frac{2 * d_f}{m_f * (m_f - 1)} &= \frac{2 * 1}{2 * (2 - 1)} = 1 \end{aligned}$$

2

The Mypic path is from node n to k to j to e to f. The shortest path is from n to m to l to f

3

Please Help me

4

The Degree distribution is $\{0, 0.2, 0.1, 0.2, 0.2, 0.1, 0.1, 0.1\}$

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The nodes combination BCA and ADE satisfy the triadic closure principle

7

To find the average path length of the network, we use this formular $\frac{\log n}{\log k}$. n is 50 and k is 10.
So our calculation is $\frac{\log 50}{\log 10} = 1.7$. The closest value is B, 2.