

$$L = \frac{1}{N(N-1)} \sum_{i \neq j} d_{ij}$$
 where d_{ij} is the path length from i to j .
 L is average path length

$$C = \frac{1}{N} \sum_i C_i$$
 where

$$C_i = \frac{\# \text{ edges in } G_i}{\frac{k_i(k_i - 1)}{2}}$$

G_i is the subgraph containing all neighbors of node i & $\frac{k_i(k_i - 1)}{2}$ is the max number of edges in G_i (since k_i is # of nodes in G_i).

$$E(G) = \frac{\sum_{i \neq j} e_{ij}}{N(N-1)}$$

ie average
efficiency b/w
all pairs

$$e_{ij} = \frac{1}{d_{ij}}$$