Networks and Complexity

Solution 5-4

This is an example solution from the forthcoming book Networks and Complexity.
Find more exercises at https://github.com/NC-Book/NCB

Ex 5.4: Large abstract network [2]

A network has $N = 20,000$ nodes, mean degree of $z = 10$ and no significant clustering coefficient ($c \approx 0$.) Estimate the diameter of this network.

Solution

We can use our formula

$$\begin{aligned} D &= \log_z(N) && (1)\\ &= \log_{10}(20,000) && (2)\\ &= \log_{10}(2) + \log_{10}(10^4) && (3)\\ &\approx 4.3 && (4) \end{aligned}$$