(f) Plot the complexities.

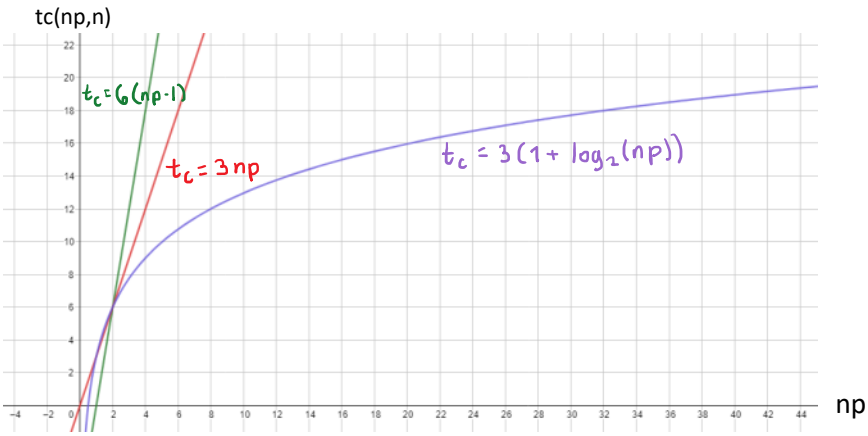
The time complexities for communication are:

$$t_c^a = 6(np - 1)$$

$$t_c^b = 3np$$

$$t_c^c = 3(1 + \log_2 np)$$

Which plotted together looks as below.




(g) Compare the results obtained in a, b and c:
Which network is the best? Which one the worst?

For the three networks, we got the following complexities:

a. Linear $t_c^a = 6(np - 1)$

b. Ring $t_c^b = 3np$

c. Completely Connected $t_c^c = 3(1 + \log_2 np)$

By looking at their models, we see that both the Linear and the Ring involve the np term raised to the power of 1, which means both are linear functions. Out of the two, the Linear function has slope of 6, while the Ring function has a slope of 3, meaning that the Ring function grows slower in time when np increases, suggesting that the Ring function is more recommended than the Linear. Finally, the Completely Connected function has a logarithmic behaviour, which grows slower in time as np increases than any of the two linear functions. Therefore, the best network is the Completely Connected, and the worst is the Linear Network, in terms of time complexity for communication.