

NETWORKS AND COMPLEXITY

Solution 1-5

*This is an example solution from the forthcoming book *Networks and Complexity*.*

Find more exercises at <https://github.com/NC-Book/NCB>

Ex 1.5: Another power grid [2]

Construct a power grid between 4 cities $V = \{A, B, C, D\}$. The distance between cities (in km) is given by

$$\mathbf{D} = \begin{pmatrix} 0 & 17 & 23 & 9 \\ 17 & 0 & 18 & 13 \\ 23 & 18 & 0 & 27 \\ 9 & 13 & 27 & 0 \end{pmatrix}.$$

Solution

We do the following:

1. Try (A,D) [9km] – accept
2. Try (B,D) [13km] – accept
3. Try (A,B) [17km] – reject
4. Try (B,C) [18km] – accept

So, the resulting edge set is

$$E = \{(A, D), (B, D), (B, C)\}. \tag{1}$$