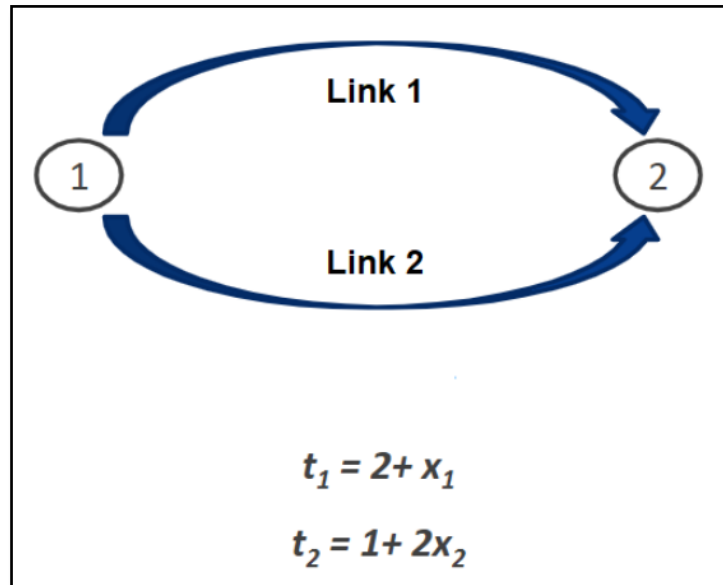


Network performance

Consider the following scenario:



The figure above shows two unidirectional links (roads) connecting the Origin (Point 1) and the Destination (Point 2). The equations shown in the figure represent the link cost functions, i.e. the relationship between travel time in minutes (denoted by t_i) and the traffic flow in vehicles per hour (denoted by x_i) on a link (denoted by i).

Consider that there are 65 car trips per hour to be made between 1 and 2, of which 43 cars use Link 1 while the rest follow Link 2.

Also assume the lengths of Links 1 and 2 as 20 km and 15 km respectively.

Solve the following questions based on this information.

Question 1. What is the free-flow travel time on Link 1?

Question 2. What is the VHT for this road network?

Question 3. What is the VKT for this road network?

Question 4. What is the average speed (in km/h) on Link 2?

Question 5. Which link has a higher delay?