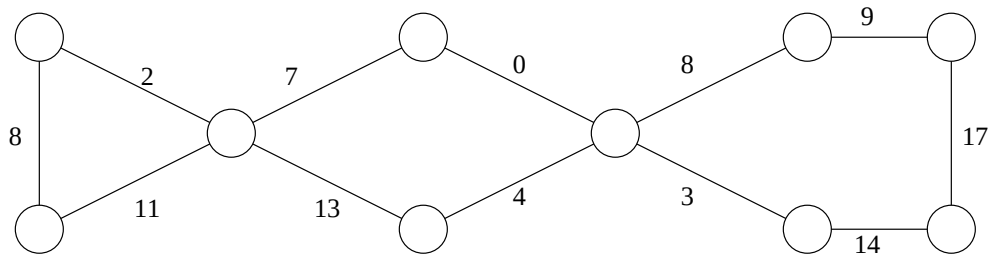
CPSC 041: Homework

Due date: 22 November

1. A *bike-chain graph* is an undirected weighted graph consisting of simple cycles called *links*. Two links have a single vertex in common. Such a vertex is called a *pin*. Pins have degree four while all other vertices have degree two. The following is an example of a bike-chain with three links and two pins.



- Assume that a bike-chain graph G has k links, n vertices, and m edges. Give m as a function of k and n.
- Describe and analyze an efficient algorithm for computing the minimal spanning tree of G.

2. CLRS 24.2-4 (Number of paths in a DAG)

3. CLRS 24.3-4 (Reliable paths)