1. ([R], Page 802, Exercise 4) In Exercises 4 use Prim’s algorithm to find a minimum spanning tree for the given weighted graph.

Answer Area:

2. ([R], Page 802, Exercise 8) Use Kruskal’s algorithm to find a minimum spanning tree for the weighted graph in Exercise 4.

Answer Area:

3. ([R], Page 803, Exercise 15) Find a maximum spanning tree for the weighted graph in Exercise 4.

Answer Area:
4. ([R], Page 803, Exercise 19) Show that there is a unique minimum spanning tree in a connected weighted graph if the weights of the edges are all different.

**Answer Area:**

If all edges have different weights, then a contradiction is obtained in the proof that Prim’s algorithm works when an edge \( e_{k+1} \) is added to \( T \) and an edge \( e \) is deleted, instead of possibly producing another spanning tree.