Minimum Spanning Tree

	1	2	3	4	5
1	x	10	12	9	8
2	x	x	14	11	5
3	x	x	x	8	6
4	x	x	x	x	6
5	x	x	x	x	x

```
1  using OperationsResearchModels
```

```
1  connections = [
2      Connection(1, 2, 10),
3      Connection(1, 3, 12),
4      Connection(1, 4, 9),
5      Connection(1, 5, 8),
6      Connection(2, 3, 14),
7      Connection(2, 4, 11),
8      Connection(2, 5, 5),
9      Connection(3, 4, 8),
10     Connection(3, 5, 6),
11     Connection(4, 5, 6)
12 ];
```

```
1  problem = MstProblem(connections);
```

```
1  result = solve(problem);
```

```
25.0
1  result.distance
```

```
1  map(println, result.connections);
```

```
OperationsResearchModels.Network.Connection(2, 5, 5, "x25")
OperationsResearchModels.Network.Connection(4, 5, 6, "x45")
OperationsResearchModels.Network.Connection(3, 5, 6, "x35")
OperationsResearchModels.Network.Connection(1, 5, 8, "x15")
```

- Note 2 → Node 5 (5 km)
- Node 4 → Node 5 (6 km)
- Node 3 → Node 5 (6 km)
- Node 1 → Node 5 (8 km)
- Total length of the network: 25 km

Exercise:

- Draw the whole network
- Find the minimal spanning tree using Prim's algorithm
- Draw the network with optimal connections