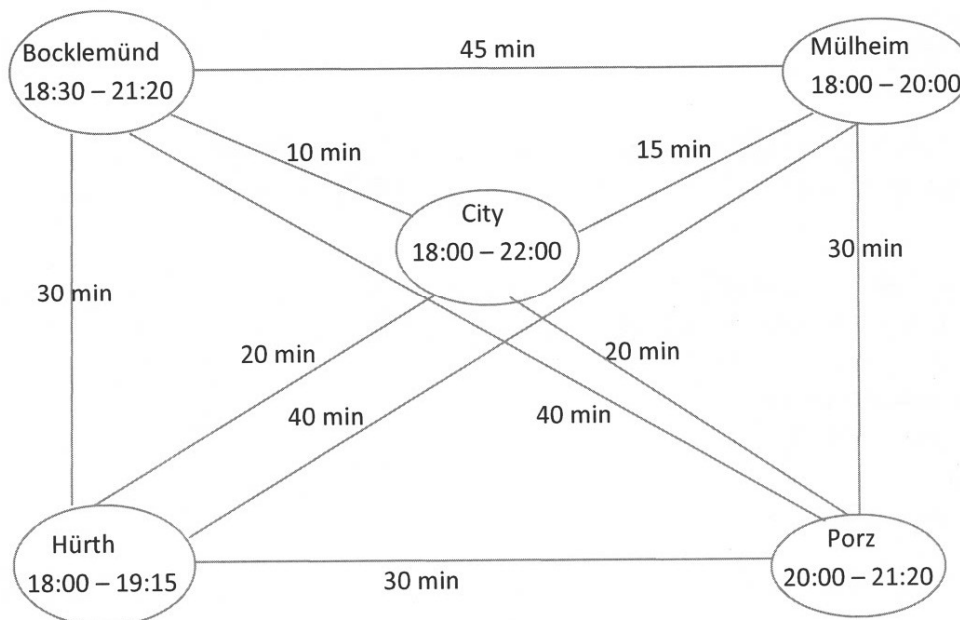


2.2.3 The evening delivery

A company that repairs PC printers within 24 hours has a special evening delivery between 6 pm and 10 pm for residential customers. Since each printer is also reconnected to the PC and a test run is carried out, 20 minutes must be scheduled for each delivery point. Each customer sets a time for the evening delivery when they are ready to receive the printer again. You are the driver and have just received the addresses and specified reception times of the customers for this evening. You know your way around the city well and can therefore estimate the driving times yourself very well. Now you have to work out a schedule in which you can properly handle all 5 deliveries between 6 and 10 pm. But you will only be satisfied if you don't have to take any compulsory breaks!



To solve the tasks, you have to work out a personal route plan that takes all the specifications into account.

The optimal route starts with the customer who is out of reception the earliest, i.e. in the Hürth district. If you were to start in Mülheim, you could only be in Hürth after 20 minutes + 40 minutes of walking, i.e. at 19:00, and would only have 15 minutes instead of 20 minutes there.

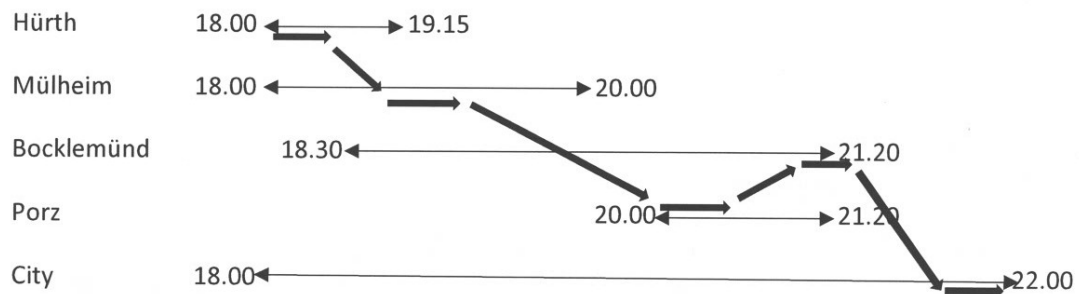
If you start at 18:00 in Hürth, you will be finished there at 18:20 and drive to the customer who is not ready to receive next, in the district of Mülheim. You need 40 minutes to get there, so you are there at 19:00 and work until 19:20.

If you were to go to Bocklemünd now, you would be there at 20:05 and could continue to Porz at 20:25. But you wouldn't arrive there until 21:05 and couldn't finish until 21:20.

So instead you drive from Mülheim to Porz at 19:20, arrive there at 19:50 and have to wait 10 minutes for your customer, which you don't want. The solution: You don't start at 18:00, but at 18:10 in Hürth. Then you are exactly at 20:00 at your customer in Porz, do not have to wait for him and have thus saved 10 minutes for your route.

You finish in Porz at 20:20, drive to Bocklemünd by 21:00 and complete your task here by 21:20. Then another 10 minutes' drive to the city centre and you have properly completed all your tasks by 21:50. Your working time lasted from 18:10 to 21:50, i.e. 3 h 40 min. Your pure driving time was $40 + 30 + 40 + 10 = 120$ minutes, not counting the journey to and from the first and last customer.

This planning is also clearly shown in this graph, which you should also record in the test:



Here are all 5 time slots as well as the duration for the routes. So you are well prepared for the questions.

Exercise 15

Which of the following statements is/are true?

- ✓ I. If it were simply a matter of supplying only 4 of the 5 customers without all the restrictions listed, there would already be over 20 possibilities.
 - ✓ II. If all restrictions are taken into account, in the best case you would only need 2 hours of pure driving time, not counting the driving time to the first customer and away from the last customer.
- (A) Only statement I is true.
- (B) Only statement II is true.
- ✓ (C) Both statements are true.
- (D) None of the statements is true.