

## Exercise sheet 8

### Exercise 1

Frogs have many natural enemies for which reason they must be able to jump unerringly away. Let's have a look on the frog "GloPE" while he's jumping. In the given show-jumping course, he would like to arrive the target field as fast as possible. From each field of the course he is allowed to jump as many fields forward or backward as it is printed on the field. At the beginning he is standing on the first field with the number five.

How he can reach the target field with a minimal number of jumps? We only count the number of jumps and not the total length of the drive.

- (a) Formulate the problem as a general graph problem of suitable type. How one has to change the graph such that the frog is allowed to jump beyond the target field.

- (b) Compute an optimal jumping-sequence for frog GloPE. The sequence of field numbers is given in the file `GloPE.txt` which can be downloaded from the homepage.

