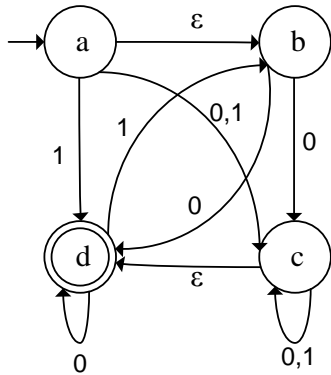


### Regular expressions and finite automata. Variant 1.

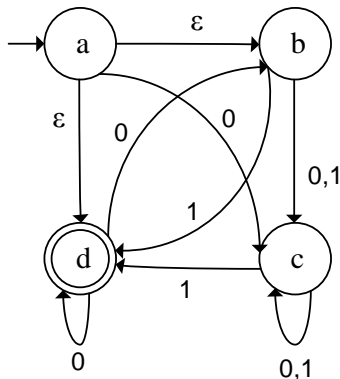
1. Describe the behavior of the NFA if the input string is 0110. Construct a DFA equivalent to the NFA.



2. Construct a regular expression specifying the same language as the language accepted by the DFA from the task 1.
3. Construct a NFA accepting the language specified by the regular expression  $0(1+0^*)1^*$ .
4. Are the regular expressions  $0(10)^*1^*$  and  $(01)^*0(1^*)^*$  equivalent?
5. Construct a finite automata accepting numbers in ternary notation divisible by five.

### Regular expressions and finite automata. Variant 2.

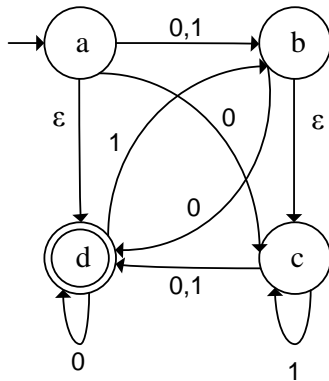
1. Describe the behavior of the NFA if the input string is 0110. Construct a DFA equivalent to the NFA.



2. Construct a regular expression specifying the same language as the language accepted by the DFA from the task 1.
3. Construct a NFA accepting the language specified by the regular expression  $0^*(1+01+10)1^*0$ .
4. Are the regular expressions  $(11+0)(11)^*01$  and  $(11)^*01+01(11)^*01$  equivalent?
5. Construct a finite automata accepting numbers in binary notation divisible by five.

### Regular expressions and finite automata. Variant 3.

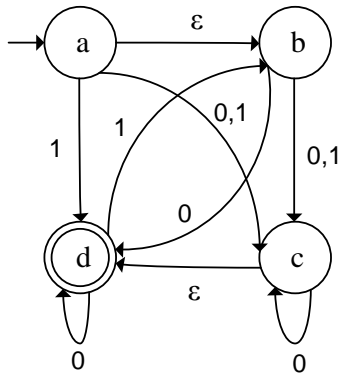
1. Describe the behavior of the NFA if the input string is 0110. Construct a DFA equivalent to the NFA.



2. Construct a regular expression specifying the same language as the language accepted by the DFA from the task 1.
3. Construct a NFA accepting the language specified by the regular expression  $(1+0^*)1^*(10+01^*)$ .
4. Are the regular expressions  $(0+10)^*1^*$  and  $(0^*10^*)^*1^*$  equivalent?
5. Construct a finite automata accepting numbers in ternary notation divisible by four.

### Regular expressions and finite automata. Variant 4.

1. Describe the behavior of the NFA if the input string is 0110. Construct a DFA equivalent to the NFA.



2. Construct a regular expression specifying the same language as the language accepted by the DFA from the task 1.
3. Construct a NFA accepting the language specified by the regular expression  $0(1+0^*+01)(1+00)^*$ .
4. Are the regular expressions  $0(10)^*+(01)^*0$  and  $(01+10)^*0$  equivalent?
5. Construct a finite automata accepting numbers in binary notation divisible by six.