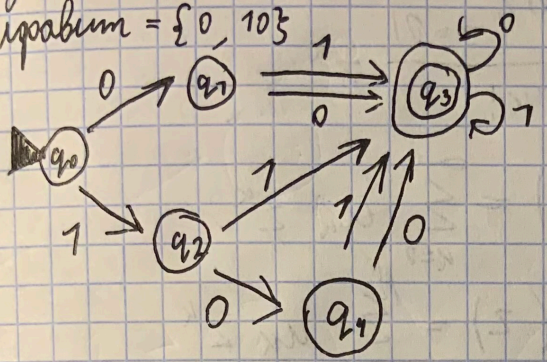
Дополнительная работа.

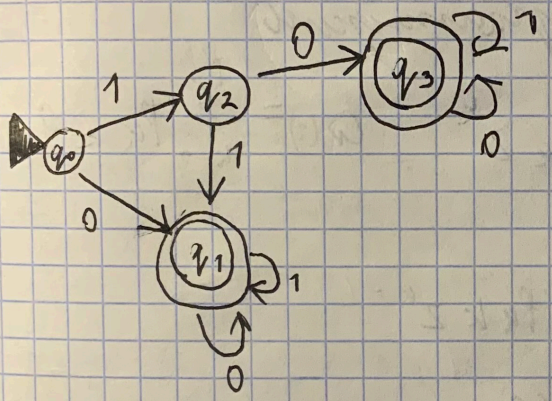
Задание на конечные автоматы.

Алфавит = {0, 1}



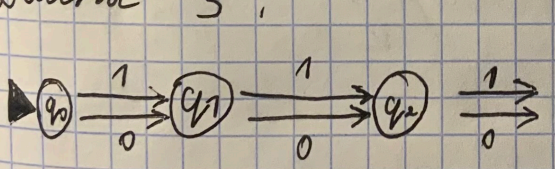
q \ a	0	1
q_0	q_1	q_2
q_1	q_3	q_3
q_2	q_4	q_3
q_3	q_3	q_3
q_4	q_3	q_3

Начало с 10...



q \ a	0	1
q_0	q_1	q_2
q_1	q_1	q_1
q_2	q_3	q_1
q_3	q_3	q_3

Длины 3:



q \ a	0	1
q_0	q_1	q_2
q_1	q_2	q_2
q_2	q_3	q_3
q_3	q_4	q_4

→ q_4 q_4 q_4

Домашняя работа.

Задача 4. $y \neq 0 \quad 0 = 0(x)$ $\quad x+1 = S(x)$ $\quad y+1 = S(y)$

1) $Sum(x, 0) = I_3^1(x, 0, Sum) = x$ ← когда $y = 0$

$Sum(x, y+1) = S(Sum(x, y))$

2) $Mul(x, 0) = I_3^2(x, 0, Mul(x, 0)) = 0$ ← когда $y = 0$

$Mul(x, y+1) = Sum(x, Mul(x, y))$

3) $Exp(x, 0) = I_3^2(x, S(0), Exp(x, 0)) = S(0) = 1$

$Exp(x, y+1) = Mul(x, Exp(x, y))$ ↗ когда $y = 0$

4) $TETR(x, 0) = S(I_3^2(x, 0, TETR)) = S(0) = 1$

$TETR(x, y+1) = Exp(x, TETR(x, y))$ ↗ когда $y = 0$

5) $Fac(0) = S(I_2^1(0, Fac(0))) = S(0) = 1$

$Fac(S(0)) = I_2^1(S(0), Fac(0)) = S(0) = 1$

$Fac(x+1) = Mul(x+1, Fac(x))$

6)

$$Pred(x) = \begin{cases} x-1, & x \geq 1 \\ 0, & x < 1 \end{cases}$$

$Pred(0) = I_2^1(0, Pred(0)) = 0$

$Pred(x+1) = \underbrace{S(S(\ldots(Pred(0))}_{x \text{ раз}}), \quad x \geq 1.$

7) $\begin{cases} DiFF(x,y) = x - y & (x > y) \\ DiFF(x,y) = 0 & (x \leq y) \end{cases}$

$DiFF(x, 0) = I_3^1(x, 0, DiFF(x,0)) = x$

$DiFF(x,y) = DiFF(Pred(x), Pred(y))$

8) $ABS(0, y) = I_3^2(0, y, ABS(0, y))$

$ABS(x, 0) = I_3^1(x, 0, ABS(x, 0))$

$ABS(x, y) = ABS(Pred(x), Pred(y))$

9) $sg(x) = \begin{cases} 1, & x > 0 \\ 0, & x \leq 0 \end{cases}$

$sg(S(0)) = I_2^1(S(0), sg(S(0))) = S(0) = 1$

$Sg(x) = Sg(Prev(x)), \quad x > 0$

10) $antisg = \begin{cases} 0, & x > 0 \\ 1, & x \leq 0 \end{cases}$

$antisg(S(0)) = Prev(I_2^1(0), antisg(S(0))) = Prev(S(0)) =$

$= 0$

$antisg(x) = antisg(Prev(x)), \quad x > 0.$

11) $x \leq y$

$DIFF(x, y) = 0$

$REM(x, y) = I_3^1(x, y, REM(x, y)) = x$

$x > y$

$REM(x, y) = REM(I_3^3(x, y, DIFF(x, y)), y) =$

$= x - \underbrace{y - y - \ldots}_{x > y}$

12) $x < y$

$MOD(x, y) = 0(I_3^1(x, y, MOD(x, y))) =$

$= 0(x) = 0$

$x \geq y$

$$\frac{x-y}{y} = \frac{x}{y} - 1 \Rightarrow \frac{x}{y} = 1 + \frac{x-y}{y}$$

$$MOD(x,y) = S(I_3^3(x, y, MOD(DIFF(x,y), y))$$

Лекция N7. Динамическое программирование.

Задержание стержня:

Цена разреза $= 0$.

P_i - цена куска длиной i.

$i \in N \cup \{0\}$.

Длина k_i

$\sum_i k_i = n$