DFA $\Sigma = \{a, b\}$
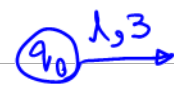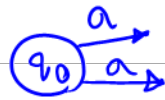

$\delta(q_i, a) = q_i$

$\delta^*(q_i, string) = q_i$

NFA $\Sigma = \{a, b\}$

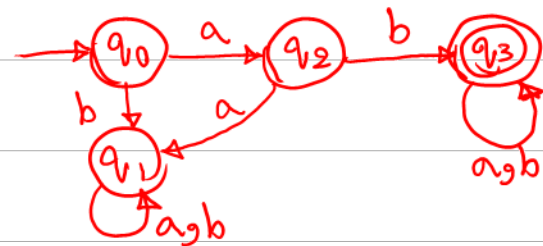

$\delta(q_i, a) = \{q_j, q_k, —\}$

$\delta^*(q_i, string) = \{—\}$

Q: L = {All strings with prefix 'ab'} $\Sigma = \{a, b\}$

DFA:
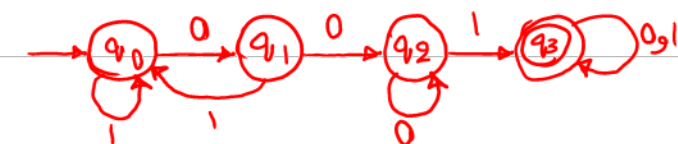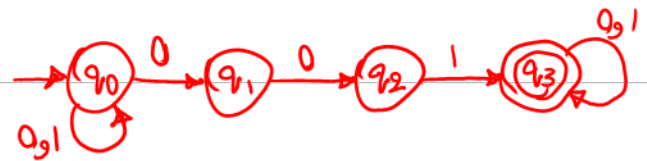

NFA:

Q: L = {All string include '001'} $\Sigma = \{0, 1\}$

DFA:
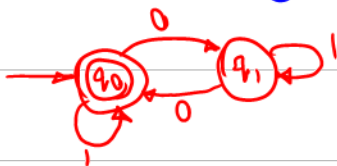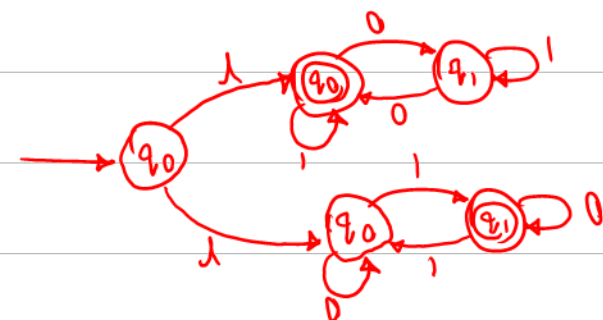

NFA

Q: L = {All string with even number '0'} $\Sigma = \{0, 1\}$
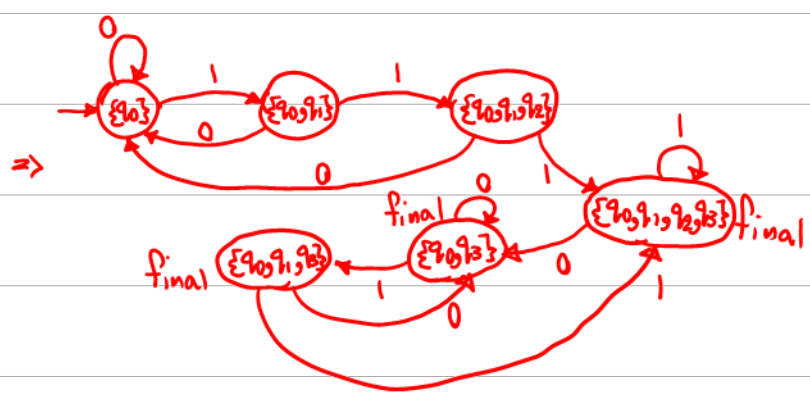

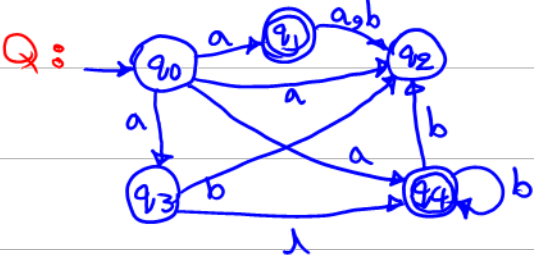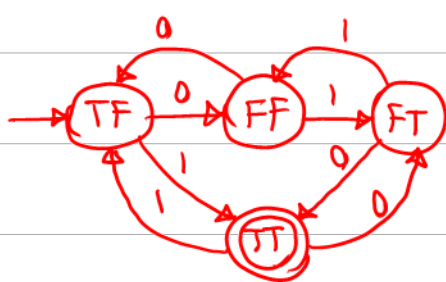Q: L = {even number of '0' or odd numbers of 1's}

Q: NFA to DFA

δ^*	0	1
q_0	$\{q_0\}$	$\{q_0, q_1\}$
q_1	$\emptyset$	$\{q_2\}$
q_2	$\emptyset$	$\{q_3\}$
q_3	$\{q_3\}$	$\{q_3\}$

$\Rightarrow$

Q: even 0's AND odd 1's

A	B	
T	T	T
F	T	F
T	F	F
F	F	F

Q:

δ^*	a	b
q_0	$\{q_1, q_2, q_3, q_4\}$	$\emptyset$
q_1	$\{q_1, q_2\}$	$\{q_1, q_2\}$
q_2	$\{q_1\}$	$\{q_1\}$
q_3	$\emptyset$	$\{q_2, q_1, q_4\}$
q_4	$\emptyset$	$\{q_1, q_2, q_4\}$
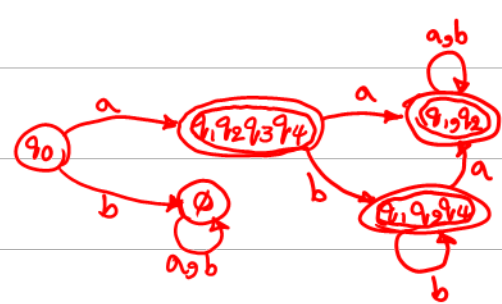
Q: M_1 M_2 $M_1 \cap M_2$

Q: $(0* | 0*1)* \; 0** \rightsquigarrow L = \{w \mid n(1) = 2K+1\}$ ① *

Q: $R_1 * R_2 + R_3 \rightsquigarrow ((R_1*) R_2) + R_3$ ② °

         ③ +

Q: $(0* | 0* | 0*) ** | (0* | 0* | 0*)* \rightsquigarrow$ تقطيع مثل ألف
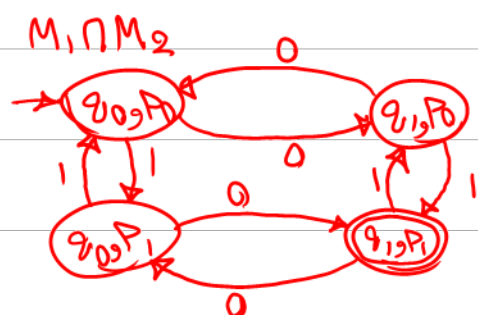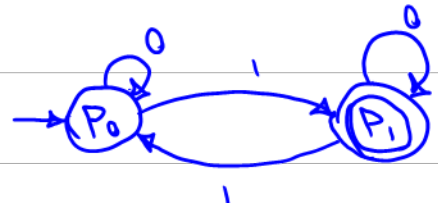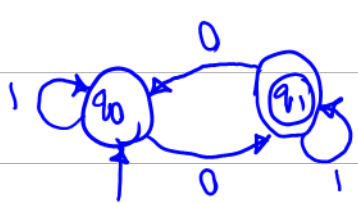
Q: $\{w \in \{0,1\}^* \mid w \text{ doesn't contain '10'}\} \rightarrow 0^* 1^*$

Q: $\{w \in \{0,1\}^* \mid w \text{ contains 00}\} \rightarrow (0+1)^* \, 00 \, (0+1)^*$

Q: w contains at least three 0 $\leadsto$ $(0+1)^* 0 (0+1)^* 0 (0+1)^* 0 (0+1)^*$

Q: at most one zero $\leadsto$ $1^* \underbrace{(0+\lambda)}_{0?} 1^*$

Q: |w| is odd $\longrightarrow$ $((0+1)(1+0))^* (0+1)$

$\alpha \equiv \beta$　　آبزتابی ① $\alpha \equiv \alpha$　　تقارنی ② $\alpha \equiv \beta \Rightarrow \beta \equiv \alpha$　　ترالدیی ③ $\alpha \equiv \beta, \beta \equiv \gamma \Rightarrow \alpha \equiv \gamma$

① $\alpha + (\beta + \gamma) \equiv (\alpha + \beta) + \gamma$　شرکت پذیری　 ⑥ $\varepsilon \alpha \equiv \alpha \equiv \alpha \varepsilon$　بی اثر

② $\alpha + \beta \equiv \beta + \alpha$　جابجایی　 ⑦ $\alpha(\beta + \gamma) \equiv \alpha\beta + \alpha\gamma$　** **

③ $\alpha + \phi \equiv \alpha$　بی اثر　 ** ⑨ $\alpha\phi \equiv \phi\alpha \equiv \phi$

④ $\alpha + \alpha \equiv \alpha$　 ⑩ $\varepsilon + \alpha\alpha^* \equiv \alpha^*$

⑤ $(\alpha\beta)\gamma \equiv \alpha(\beta\gamma)$　 ⑪ $\varepsilon + \alpha^*\alpha \equiv \alpha^*$

Q: $(0110+01)(10)^* \equiv (01(10+\varepsilon))(10)^* \equiv 01(((10+\varepsilon)(10)^*) \equiv 01(10(10)^* + (10)^*)$
$\equiv 01(10(10)^* + \varepsilon + 10(10)^*) \equiv 01(10(10)^* + \varepsilon) \equiv 01(10)^*$

Q: