

Problema 2: 25%

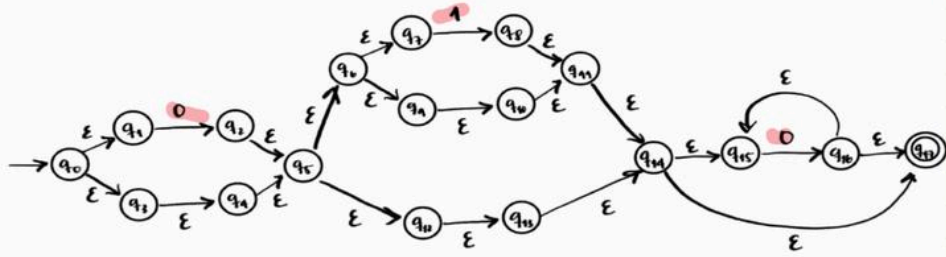
Utilice el Lema de Arden para encontrar la expresión regular del siguiente autómata. Deje todo su procedimiento

Tabla de Estados

	0	1	ϵ^*
q_0	—	—	$\{q_0, q_1, q_5, q_4, q_8, q_6, q_7, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{17}\}$
q_1	q_2	—	$\{q_1\}$
q_2	—	—	$\{q_2, q_5, q_6, q_7, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{17}\}$
q_3	—	—	$\{q_3, q_4, q_5, q_6, q_7, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{17}\}$
q_4	—	—	$\{q_4, q_5, q_6, q_7, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{17}\}$
q_5	—	—	$\{q_5, q_6, q_7, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{17}\}$
q_6	—	—	$\{q_6, q_7, q_9, q_{10}, q_{11}, q_{14}, q_{15}, q_{17}\}$
q_7	—	q_8	$\{q_7\}$
q_8	—	—	$\{q_8, q_9, q_{10}, q_{11}, q_{14}, q_{15}, q_{17}\}$
q_9	—	—	$\{q_9, q_{10}, q_{11}, q_{14}, q_{15}, q_{17}\}$
q_{10}	—	—	$\{q_{10}, q_{11}, q_{14}, q_{15}, q_{17}\}$
q_{11}	—	—	$\{q_{11}, q_{14}, q_{15}, q_{17}\}$
q_{12}	—	—	$\{q_{12}, q_{13}, q_{14}, q_{15}, q_{17}\}$
q_{13}	—	—	$\{q_{13}, q_{14}, q_{15}, q_{17}\}$
q_{14}	—	—	$\{q_{14}, q_{15}, q_{17}\}$
q_{15}	q_{16}	—	$\{q_{15}\}$
q_{16}	—	—	$\{q_{16}, q_{15}, q_{17}\}$
q_{17}	—	—	$\{q_{17}\}$

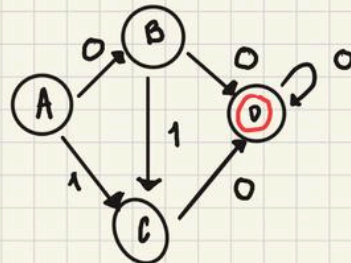
Tabla AFN

	ϵ^*	ϵ^*
$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$
$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$
$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$
$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$	$\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}, q_{12}, q_{13}, q_{14}, q_{15}, q_{16}, q_{17}\}$



	0	1	e^*
q ₀	—	—	i q ₀ , q ₁ , q ₅ , q ₄ , q ₅ , q ₆ , q ₇ , q ₉ , q ₁₀ , q ₁₁ , q ₁₂ , q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁	q ₂	—	ε q ₁ 3
q ₂	—	—	ε q ₂ , q ₅ , q ₆ , q ₇ , q ₉ , q ₁₀ , q ₁₁ , q ₁₂ , q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₃	—	—	i q ₃ , q ₄ , q ₅ , q ₆ , q ₇ , q ₉ , q ₁₀ , q ₁₁ , q ₁₂ , q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₄	—	—	i q ₄ , q ₅ , q ₆ , q ₇ , q ₉ , q ₁₀ , q ₁₁ , q ₁₂ , q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₅	—	—	i q ₅ , q ₆ , q ₇ , q ₉ , q ₁₀ , q ₁₁ , q ₁₂ , q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₆	—	—	i q ₆ , q ₇ , q ₉ , q ₁₀ , q ₁₁ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₇	—	q ₈	ε q ₇ 3
q ₈	—	—	ε q ₈ , q ₉ , q ₁₀ , q ₁₁ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₉	—	—	i q ₉ , q ₁₀ , q ₁₁ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁₀	—	—	ε q ₁₀ , q ₁₁ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁₁	—	—	i q ₁₁ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁₂	—	—	ε q ₁₂ , q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁₃	—	—	i q ₁₃ , q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁₄	—	—	ε q ₁₄ , q ₁₅ , q ₁₇ 3
q ₁₅	q ₁₆	—	ε q ₁₅ 3
q ₁₆	—	—	ε q ₁₆ , q ₁₅ , q ₁₇ 3
q ₁₇	—	—	ε q ₁₇ 3

$g_{10} = 10, g_{11} = 11, g_{12} = 12, g_{13} = 13, g_{14} = 14, g_{15} = 15, g_{16} = 16, g_{17} = 17, g_{18} = 18, g_{19} = 19, g_{20} = 20, g_{21} = 21, g_{22} = 22, g_{23} = 23, g_{24} = 24, g_{25} = 25, g_{26} = 26, g_{27} = 27, g_{28} = 28, g_{29} = 29, g_{30} = 30, g_{31} = 31, g_{32} = 32, g_{33} = 33, g_{34} = 34, g_{35} = 35, g_{36} = 36, g_{37} = 37, g_{38} = 38, g_{39} = 39, g_{40} = 40, g_{41} = 41, g_{42} = 42, g_{43} = 43, g_{44} = 44, g_{45} = 45, g_{46} = 46, g_{47} = 47, g_{48} = 48, g_{49} = 49, g_{50} = 50, g_{51} = 51, g_{52} = 52, g_{53} = 53, g_{54} = 54, g_{55} = 55, g_{56} = 56, g_{57} = 57, g_{58} = 58, g_{59} = 59, g_{60} = 60, g_{61} = 61, g_{62} = 62, g_{63} = 63, g_{64} = 64, g_{65} = 65, g_{66} = 66, g_{67} = 67, g_{68} = 68, g_{69} = 69, g_{70} = 70, g_{71} = 71, g_{72} = 72, g_{73} = 73, g_{74} = 74, g_{75} = 75, g_{76} = 76, g_{77} = 77, g_{78} = 78, g_{79} = 79, g_{80} = 80, g_{81} = 81, g_{82} = 82, g_{83} = 83, g_{84} = 84, g_{85} = 85, g_{86} = 86, g_{87} = 87, g_{88} = 88, g_{89} = 89, g_{90} = 90, g_{91} = 91, g_{92} = 92, g_{93} = 93, g_{94} = 94, g_{95} = 95, g_{96} = 96, g_{97} = 97, g_{98} = 98, g_{99} = 99, g_{100} = 100, g_{101} = 101, g_{102} = 102, g_{103} = 103, g_{104} = 104, g_{105} = 105, g_{106} = 106, g_{107} = 107, g_{108} = 108, g_{109} = 109, g_{110} = 110, g_{111} = 111, g_{112} = 112, g_{113} = 113, g_{114} = 114, g_{115} = 115, g_{116} = 116, g_{117} = 117, g_{118} = 118, g_{119} = 119, g_{120} = 120, g_{121} = 121, g_{122} = 122, g_{123} = 123, g_{124} = 124, g_{125} = 125, g_{126} = 126, g_{127} = 127, g_{128} = 128, g_{129} = 129, g_{130} = 130, g_{131} = 131, g_{132} = 132, g_{133} = 133, g_{134} = 134, g_{135} = 135, g_{136} = 136, g_{137} = 137, g_{138} = 138, g_{139} = 139, g_{140} = 140, g_{141} = 141, g_{142} = 142, g_{143} = 143, g_{144} = 144, g_{145} = 145, g_{146} = 146, g_{147} = 147, g_{148} = 148, g_{149} = 149, g_{150} = 150, g_{151} = 151, g_{152} = 152, g_{153} = 153, g_{154} = 154, g_{155} = 155, g_{156} = 156, g_{157} = 157, g_{158} = 158, g_{159} = 159, g_{160} = 160, g_{161} = 161, g_{162} = 162, g_{163} = 163, g_{164} = 164, g_{165} = 165, g_{166} = 166, g_{167} = 167, g_{168} = 168, g_{169} = 169, g_{170} = 170, g_{171} = 171, g_{172} = 172, g_{173} = 173, g_{174} = 174, g_{175} = 175, g_{176} = 176, g_{177} = 177, g_{178} = 178, g_{179} = 179, g_{180} = 180, g_{181} = 181, g_{182} = 182, g_{183} = 183, g_{184} = 184, g_{185} = 185, g_{186} = 186, g_{187} = 187, g_{188} = 188, g_{189} = 189, g_{190} = 190, g_{191} = 191, g_{192} = 192, g_{193} = 193, g_{194} = 194, g_{195} = 195, g_{196} = 196, g_{197} = 197, g_{198} = 198, g_{199} = 199, g_{200} = 200, g_{201} = 201, g_{202} = 202, g_{203} = 203, g_{204} = 204, g_{205} = 205, g_{206} = 206, g_{207} = 207, g_{208} = 208, g_{209} = 209, g_{210} = 210, g_{211} = 211, g_{212} = 212, g_{213} = 213, g_{214} = 214, g_{215} = 215, g_{216} = 216, g_{217} = 217, g_{218} = 218, g_{219} = 219, g_{220} = 220, g_{221} = 221, g_{222} = 222, g_{223} = 223, g_{224} = 224, g_{225} = 225, g_{226} = 226, g_{227} = 227, g_{228} = 228, g_{229} = 229, g_{230} = 230, g_{231} = 231, g_{232} = 232, g_{233} = 233, g_{234} = 234, g_{235} = 235, g_{236} = 236, g_{237} = 237, g_{238} = 238, g_{239} = 239, g_{240} = 240, g_{241} = 241, g_{242} = 242, g_{243} = 243, g_{244} = 244, g_{245} = 245, g_{246} = 246, g_{247} = 247, g_{248} = 248, g_{249} = 249, g_{250} = 250, g_{251} = 251, g_{252} = 252, g_{253} = 253, g_{254} = 254, g_{255} = 255, g_{256} = 256, g_{257} = 257, g_{258} = 258, g_{259} = 259, g_{260} = 260, g_{261} = 261, g_{262} = 262, g_{263} = 263, g_{264} = 264, g_{265} = 265, g_{266} = 266, g_{267} = 267, g_{268} = 268, g_{269} = 269, g_{270} = 270, g_{271} = 271, g_{272} = 272, g_{273} = 273, g_{274} = 274, g_{275} = 275, g_{276} = 276, g_{277} = 277, g_{278} = 278, g_{279} = 279, g_{280} = 280, g_{281} = 281, g_{282} = 282, g_{283} = 283, g_{284} = 284, g_{285} = 285, g_{286} = 286, g_{287} = 287, g_{288} = 288, g_{289} = 289, g_{290} = 290, g_{291} = 291, g_{292} = 292, g_{293} = 293, g_{294} = 294, g_{295} = 295, g_{296} = 296, g_{297} = 297, g_{298} = 298, g_{299} = 299, g_{300} = 300, g_{301} = 301, g_{302} = 302, g_{303} = 303, g_{304} = 304, g_{305} = 305, g_{306} = 306, g_{307} = 307, g_{308} = 308, g_{309} = 309, g_{310} = 310, g_{311} = 311, g_{312} = 312, g_{313} = 313, g_{314} = 314, g_{315} = 315, g_{316} = 316, g_{317} = 317, g_{318} = 318, g_{319} = 319, g_{320} = 320, g_{321} = 321, g_{322} = 322, g_{323} = 323, g_{324} = 324, g_{325} = 325, g_{326} = 326, g_{327} = 327, g_{328} = 328, g_{329} = 329, g_{330} = 330, g_{331} = 331, g_{332} = 332, g_{333} = 333, g_{334} = 334, g_{335} = 335, g_{336} = 336, g_{337} = 337, g_{338} = 338, g_{339} = 339, g_{340} = 340, g_{341} = 341, g_{342} = 342, g_{343} = 343, g_{344} = 344, g_{345} = 345, g_{346} = 346, g_{347} = 347, g_{348} = 348, g_{349} = 349, g_{350} = 350, g_{351} = 351, g_{352} = 352, g_{353} = 353, g_{354} = 354, g_{355} = 355, g_{356} = 356, g_{357} = 357, g_{358} = 358, g_{359} = 359, g_{360} = 360, g_{361} = 361, g_{362} = 362, g$



$$q_0 = C \quad q_1 = q_0 C \quad q_2 = q_1 C \quad q_3 = q_0 \epsilon \quad q_4 = q_3 \epsilon$$

$$q_5 = q_2 \epsilon + q_4 C \quad q_6 = q_5 \epsilon \quad q_7 = q_6 \epsilon \quad q_8 = q_1 \epsilon$$

$$q_5 = \epsilon(C + C) \quad q_{13} = q_{12} \epsilon$$

$$q_5 = 0^P \quad q_{15} = q_{14} C + q_{16} \epsilon$$

$$q_6 = 43$$

$$q_7 = q_3 \quad q_7 = 43 \quad q_8 = q_5 \quad q_9 = q_5 \quad q_{10} = q_5$$

$$q_{11} = (0^P) C + 0^P \epsilon \quad q_{11} = 0^P (1 + \epsilon) \quad q_0 = q_5 (1 + \epsilon)$$

$$q_{13} = 0^P \quad q_{13} = 0^P \quad q_{14} = 0^P (1 + \epsilon) + 0^P \epsilon$$

$$q_{15} = q_5 (1 + C) + q_{16} \epsilon \quad q_{15} = q_5 (1 + \epsilon) + 0^P$$

$$q_{17} = q_5 (1 + \epsilon) + [q_5 (1 + \epsilon) + 0^P] 0$$

$$q_{17} = q_5 (1 + \epsilon) + q_5 (1 + C) 0 + 0^P 0 \quad q_{17} = 0^P [(1 + \epsilon) + (1 + \epsilon) 0^P]$$

$$q_{17} = 0 + 7^P 0^P 0^P$$