

# Tarea 4.1

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Calcular a mano Ackermann de  $A(3, 1)$

$$A(0, y) = y + 1$$

$$A(x+1, 0) = A(x, 1)$$

$$A(x+1, y+1) = A(x, A(x+1, y))$$

$$A(3, 1) = A(2, A(3, 0)) \rightarrow ③$$

$$A(3, 0) = A(2, 1)$$

$$A(2, 1) = A(1, A(2, 0)) \rightarrow ②$$

$$A(2, 0) = A(1, 1)$$

$$A(1, 1) = A(0, A(1, 0)) \rightarrow ①$$

$$A(1, 0) = A(0, 1)$$

$$A(0, 1) = 2$$

$$① A(0, 2) = 3$$

$$② A(1, 3) = A(0, A(1, 2))$$

$$A(1, 2) = A(0, A(1, 1))$$

$$A(1, 1) = A(0, 2)$$

$$A(0, 2) = 3$$

$$A(1, 3) = A(0, 4) = 5$$

$$③ A(2, 5) = A(1, A(2, 4))$$

$$A(2, 4) = A(1, A(2, 3))$$

$$A(2, 3) = A(1, A(2, 2))$$

$$A(2, 2) = A(1, A(2, 1))$$

$$A(2, 1) = A(1, 2)$$

$$A(1, 2) = A(0, A(1, 1))$$

$$A(1, 1) = A(0, 2)$$

$$A(1, 2) = A(0, 3) = 4$$

$$A(1, 3) = A(0, 4) = 5$$

$$A(2, 3) = A(1, 4)$$

$$A(1, 4) = A(0, A(1, 3))$$

$$A(1, 3) = A(0, A(1, 2))$$

$$A(1, 2) = A(0, 3) = 4$$

$$A(1, 3) = A(0, 4) = 5$$

$$A(1, 4) = A(0, 5) = 6$$

$$A(1, 5) = A(0, 6) = 7$$

$$A(1, 6) = A(0, 7) = 8$$

$$A(1, 7) = A(0, 8) = 9$$

$$A(1, 8) = A(0, 9) = 10$$

$$A(1, 9) = A(0, 10) = 11$$

$$A(2, 5) = A(1, 11)$$

$$A(1, 11) = A(0, A(1, 10))$$

$$A(1, 10) = A(0, A(1, 9))$$

$$A(1, 9) = A(0, 10) = 11$$

$$A(1, 10) = A(0, 11) = 12$$

$$A(1, 11) = A(0, 12) = 13$$

$$A(3, 1) = A(2, 5)$$

$$A(2, 5) = 13$$