Ejercicio 1 - Algoritmo A y A*

			L	J
		e ←	K ←	I ↑
				G ↑
		C	A →	D
			i ↑	
	H	E	B	F

$E = \{\ \}\quad F = \{\ i^{4}_{0\ 4}\}\quad T(i) = F$

$E = \{\ i^{4}_{0\ 4}\}\quad F = \{A^{4}_{1\ 3\ (i)}, B^{6}_{1\ 5\ (i)}\}\quad T(A) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}\}\quad F = \{B^{6}_{1\ 5\ (i)}, C^{5}_{3\ 2\ (A)}, D^{7}_{3\ 4\ (A)}\}\quad T(C) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}\}\quad F = \{B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}\}\quad T(B) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}\}\quad F = \{D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}, F^{9}_{3\ 6\ (B)}\}\quad T(D) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}\}\quad F = \{E^{7}_{3\ 4\ (B)}, F^{9}_{3\ 6\ (B)}, G^{7}_{4\ 3\ (D)}\}\quad T(E) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}\}\quad F = \{F^{9}_{3\ 6\ (B)}, G^{7}_{4\ 3\ (D)}, H^{10}_{5\ 5\ (E)}\}\quad T(G) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}, G^{7}_{4\ 3\ (D)}\}\quad F = \{F^{9}_{3\ 6\ (B)}, H^{10}_{5\ 5\ (E)}, I^{7}_{5\ 2\ (G)}\}\quad T(I) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}, G^{7}_{4\ 3\ (D)}, I^{7}_{5\ 2\ (G)}\}\quad F = \{F^{9}_{3\ 6\ (B)}, H^{10}_{5\ 5\ (E)}, J^{9}_{6\ 3\ (I)}, K^{8}_{7\ 1\ (I)}\}\quad T(K) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}, G^{7}_{4\ 3\ (D)}, I^{7}_{5\ 2\ (G)}, K^{8}_{7\ 1\ (I)}\}\quad F = \{F^{9}_{3\ 6\ (B)}, H^{10}_{5\ 5\ (E)}, J^{9}_{6\ 3\ (I)}, L^{10}_{8\ 2\ (K)}, e^{9}_{9\ 0\ (K)}\}\quad T(F) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}, G^{7}_{4\ 3\ (D)}, I^{7}_{5\ 2\ (G)}, K^{8}_{7\ 1\ (I)}, F^{9}_{3\ 6\ (B)}\}\quad F = \{H^{10}_{5\ 5\ (E)}, J^{9}_{6\ 3\ (I)}, L^{10}_{8\ 2\ (K)}, e^{9}_{9\ 0\ (K)}\}\quad T(J) = F$

$E = \{\ i^{4}_{0\ 4}, A^{4}_{1\ 3\ (i)}, C^{5}_{3\ 2\ (A)}, B^{6}_{1\ 5\ (i)}, D^{7}_{3\ 4\ (A)}, E^{7}_{3\ 4\ (B)}, G^{7}_{4\ 3\ (D)}, I^{7}_{5\ 2\ (G)}, K^{8}_{7\ 1\ (I)}, F^{9}_{3\ 6\ (B)}, J^{9}_{6\ 3\ (I)}\}\quad F = \{H^{10}_{5\ 5\ (E)}, L^{10}_{8\ 2\ (K)}, e^{9}_{9\ 0\ (K)}\}\quad T(e) = T$

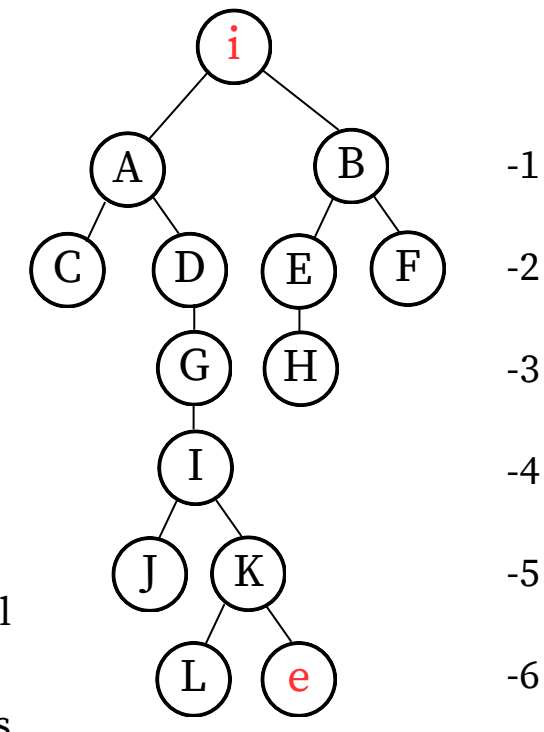
$N^{f}_{g\ \ h\ (p)}$

Algoritmo (a igual F) = FIFO

Función sucesora = $\uparrow_1 \downarrow_1 \overset{2}{\leftarrow} \overset{2}{\rightarrow}$

Heurística = Distancia Manhattan

Solución: i A D G I K e



Ejercicio 2:

La heurística utilizada en el algoritmo A, ¿es admisible? ¿Por qué? ¿Podemos decir que el algoritmo es A*?

Si, la heurística es admisible porque ningún nodo ha sobrestimado el coste real de alcanzar el objetivo.

- Sí, podemos afirmar que el algoritmo es A* porque cumple los requisitos necesarios: Uso de una heurística admisible y completitud.