WATER JUG PROBLEM

Goal - State = (2, y) where $0 \leq y \leq 3$.

Steps :-

		J_1	J_2
① Fill 4 gallon jug	→ (4, y)	4	0
② Fill 3-gallon jug	→ (x, 3)	1	3
③ Empty 4-gal on ground	→ (0, y)	1	0
④ Empty 3-gal jug on ground	→ (x, 0)	0	1
⑤ pour water from 3-gal jug to fill 4-gal jug	→ (4, y - (4-x))	4	1

(5) Pour water from 4-gal jug to fill 3-gal jug → (x-(3-y), 3) → (1, 3)

(6) Pour all of water from 3-gal jug into 4-gal jug → (x+y, 0) → (4, 0)

(7) Pour all of water from 4-gal jug into 3gal jug → (0, x+y) → (0, 3)

Here (2, 1)

↓

2 gallon in jug 1