Assignment 5

1. Write a Prolog program to implement Water Jug Problem:
   "You are given two jugs, a 4-gallon one and a 3-gallon one. Neither have any measuring markers on it. There is a tap that can be used to fill the jugs with water. How can you get exactly 2 gallons of water into the 4-gallon jug?".

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/* Production Rules:-
    R1: (x,y) --> (4,y) if x < 4
    R2: (x,y) --> (x,3) if y < 3
    R3: (x,y) --> (x-d,y) if x > 0
    R4: (x,y) --> (x,y-d) if y > 0
    R5: (x,y) --> (0,y) if x > 0
    R6: (x,y) --> (x,0) if y > 0
    R7: (x,y) --> (4,y-(4-x)) if x+y >= 4 and y > 0
    R8: (x,y) --> (x-(3-y),y) if x+y >= 3 and x > 0
    R9: (x,y) --> (x+y,0) if x+y =< 4 and y > 0
    R10: (x,y) --> (0,x+y) if x+y =< 3 and x > 0
    */
```