PRODUCTION RULE

Jug 1: 13 liters, Jug 2: 11 liters

1. **Fill the 13-liter jug**
   $(x,y)\rightarrow(13,y)$
   Condition: $x<13$
   (Fill jug 1 to its full capacity.)

2. **Fill the 11-liter jug**
   $(x,y)\rightarrow(x,11)$
   Condition: $y<11$
   (Fill jug 2 to its full capacity.)

3. **Empty the 13-liter jug onto the ground**
   $(x,y)\rightarrow(0,y)$
   Condition: $x>0$
   (Empty jug 1 completely.)

4. **Empty the 11-liter jug onto the ground**
   $(x,y)\rightarrow(x,0)$
   Condition: $y>0$
   (Empty jug 2 completely.)

5. **Pour water from the 11-liter jug into the 13-liter jug**
   $(x,y)\rightarrow(x+y,0)$
   Condition: $0<x+y\leq13$ and $y>0$
   (Pour water from jug 2 into jug 1 until jug 1 is full or jug 2 is empty.)

6. **Pour water from the 13-liter jug into the 11-liter jug**
   $(x,y)\rightarrow(0,x+y)$
   Condition: $0<x+y\leq11$ and $x>0$
   (Pour water from jug 1 into jug 2 until jug 2 is full or jug 1 is empty.)

7. **Pour water from the 11-liter jug into the 13-liter jug until the 13-liter jug is full**
   $(x,y)\rightarrow(13,y-(13-x))$
   Condition: $x+y\geq13$ and $y>0$
   (Transfer water from jug 2 to jug 1 until jug 1 is full.)

8. **Pour water from the 13-liter jug into the 11-liter jug until the 11-liter jug is full**
   $(x,y) \rightarrow (x-(11-y),11)$
   Condition: $x+y \geq 11$ and $x>0$
   (Transfer water from jug 1 to jug 2 until jug 2 is full.)

Goal:
The goal is to have **8 liters in the 13-liter jug**, i.e., the state (8,y).