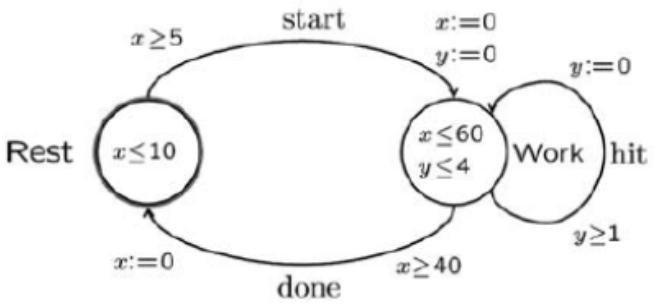
Exercise 3*



The timed automaton above describes a Worker that alternates between resting (in location *Rest*) and working (in locaiton *Work*). The work consists in hitting nails as represented by the looping *hit* edge in the *Work* location.

Given that the Worker works for 70 minutes, what is the maximum and minimum number of hits if he starts in the initial state $(Rest, [x = 0, y = 0])$? Give the two corresponding traces.

(*You are free to use UPPAAL to obtain/confirm your answer.*)

Solution:

Maximum number of hits: **60**

Strategy: Stay in Rest as short as possible,
stay in Work as long as possible
hit as fast as possible.

Trace: **5.start.(1.hit)^{60}**

attempting to continue with done.5.start will not make more hits possible

Minimum number of hits: **11**

Strategy: Stay in Rest as long as possible,
stay in Work as short as possible
hit as slow as possible.

Trace: **10.start.(4.hit)^{9} .4.done.10.start.4.hit.4.hit.2**