```
\functions {
}

\programVariables {
    R y, x, st
/*
invariant:
y >=1 & y <=12 & (st=3 -> (y >= 5 - 2*x)) & (st=1->(y<=10+x))
*/

\problem {
    /* initialization */
    \[ x:=0; y:=1; st:=0 \] ( (st = 0) /*initial state characterization */
        ->
    \[ /* system dynamics */
        ( /* repeat the discrete/continuous transitions */
        (?(st=0);
            (?(y = 10); x:=0; st:=1)
            ++ (?(y < 10 | y > 10); {x'=1,y'=1, y<=10})
            )
        ++
        (?(st=1);
            (?(x=2); st:=2)
            ++ (?(x < 2 | x > 2); {x'=1,y'=1, x <=2})
        )
        ++ (?(st=2);
            (?(y=5); x:=0; st:=3)
            ++ (?(y>5 | y < 5); {x'=1, y'=-2, y >=5})
        )
        ++ (?(st=3);
            (?(x=2); st:=0)
            ++ (?(x>2 | x < 2); {x'=1,y'=-2, x <= 2})
        )
        )*@invariant(y >=1 & y <=12 & (st=3 -> (y >= 5 - 2*x)) & (st=1->(y<=10+x)))
    \]  (y >= 1 & y <= 12)) /*safety postcondition */
}
```