```
EXTENDS Integers, GCD
 
CONSTANT M, N
ASSUME /\ M \in Nat \ {0}
       /\ N \in Nat \ {0}
 
(***************************************************************
--algorithm Euclid {
  variables x = M, y = N ;
  { while (x # y) { if (x < y) { y := y - x }
                    else         { x := x - y }
                  }
  }
}
 ***************************************************************
PartialCorrectness ==
  (pc = "Done") => (x = y) /\ (x = GCD(M, N))
 
TypeOK == /\ x \in Nat \ {0}
          /\ y \in Nat \ {0}
Inv == /\ TypeOK
       /\ GCD(x, y) = GCD(M, N)
       /\ (pc = "Done") => (x = y)
```

CLOSE