```
──────────────────── MODULE appex4_1_3 ────────────────────
EXTENDS Integers, TLC
───────────────────────────────────────────────────────────

− wfNext
--algorithm test {
variables x = 1, y = 12 ;
{
l1: assert x = 1 ∧ y = 12 ;
x := 2 ∗ y ;
l2: assert x = 1 ∧ y = 24 ;

l3: print ⟨x, y⟩ ;
 }
 }
 BEGIN TRANSLATION
VARIABLES x, y, pc

vars ≜ ⟨x, y, pc⟩

Init ≜  Global variables
         ∧ x = 1
         ∧ y = 12
         ∧ pc = "l1"

l1 ≜ ∧ pc = "l1"
      ∧ Assert(x = 1 ∧ y = 12, "Failure of assertion at line 11, column 4.")
      ∧ x′ = 2 ∗ y
      ∧ pc′ = "l2"
      ∧ y′ = y

l2 ≜ ∧ pc = "l2"
      ∧ Assert(x = 1 ∧ y = 24, "Failure of assertion at line 13, column 4.")
      ∧ pc′ = "l3"
      ∧ UNCHANGED ⟨x, y⟩

l3 ≜ ∧ pc = "l3"
      ∧ PrintT(⟨x, y⟩)
      ∧ pc′ = "Done"
      ∧ UNCHANGED ⟨x, y⟩

 Allow infinite stuttering to prevent deadlock on termination.
Terminating ≜ pc = "Done" ∧ UNCHANGED vars

Next ≜ l1 ∨ l2 ∨ l3
          ∨ Terminating
```

$Spec \triangleq Init \land \Box[Next]_{vars}$

$Termination \triangleq \Diamond(pc = \text{“Done”})$

END TRANSLATION

$MAX \triangleq 32768$ 16 bits
$D \triangleq 0 \, . . \, 32768$
$x \leq 32760$

$DD(X) \triangleq (X \in D)$

$Safety\_absence \triangleq DD(x) \land DD(y)$

$Inv \triangleq$
$\quad \land pc = \text{“l1”} \Rightarrow x = 1 \land y = 12$
$\quad \land pc = \text{“l2”} \Rightarrow x = 1 \land y = 24$