```
THEOREM␣/\␣Init␣=>␣IInv
␣␣␣␣␣␣␣␣/\␣IInv␣/\␣Next␣=>␣IInv'
␣␣␣␣␣␣␣␣/\␣IInv␣=>␣EuclidInv
<1>1.␣Init␣=>␣IIInv
␣␣␣BY␣␣PosIntAssump␣DEF␣Init,␣IInv,␣TypeOK
<1>2.␣IInv␣/\␣Next␣=>␣IInv'
␣␣<2>1.␣SUFFICES␣ASSUME␣IInv,␣Next
␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣PROVE␣␣IInv'
␣␣␣␣␣OBVIOUS
␣␣<2>2.␣CASE␣y␣>␣x
␣␣␣␣<3>1.␣(y␣-␣x␣\in␣Nat␣\␣{0})␣␣/\␣␣~(x␣>␣y)
␣␣␣␣␣␣BY␣<2>1,␣<2>2,␣SimpleArithmetic␣DEF␣IInv,␣TypeOK
␣␣␣␣<3>2.␣QED
␣␣␣␣␣␣BY␣<2>1,␣<3>1,␣GCD3␣DEF␣IInv,␣TypeOK,␣Next
␣␣<2>3.␣CASE␣x␣>␣y
␣␣␣␣<3>1.␣(x␣-␣y␣\in␣Nat␣\␣{0})␣␣/\␣␣~(y␣>␣x)
␣␣␣␣␣␣BY␣<2>1,␣<2>3,␣SimpleArithmetic␣DEF␣IInv,␣TypeOK
␣␣␣␣<3>2.␣GCD(y,␣x-y)␣=␣GCD(y,␣x)
␣␣␣␣␣␣BY␣<2>1,␣<3>1,␣GCD3␣DEF␣IInv,␣TypeOK,␣Next
␣␣␣␣<3>3.␣QED
␣␣␣␣␣␣BY␣<2>1,␣<3>1,␣<3>2,␣GCD2,␣GCD3␣␣DEF␣IInv,␣TypeOK,␣Next
␣␣<2>4.␣QED
␣␣␣␣BY␣␣<2>1,␣<2>2,␣<2>3␣DEF␣Next
<1>3.␣IInv␣=>␣EuclidInv
␣␣BY␣GCD1␣DEF␣IInv,␣EuclidInv,␣TypeOK
<1>4.␣QED
␣␣BY␣<1>1,␣<1>2,␣<1>3
```

CLOSE