

```

method ComputePos(num: int, den: int) returns (n: int)
  requires num > 0 && den > 0
  ensures n > 0 && num == fusc(n) && den == fusc(n + 1)
{
  {true}
  {1 == 1}
  {forall x :: 1 == 1}
  var x := 1;
  {x == 1}
  {x == 1 && true}
  {forall y :: x == 1 && 1 == 1}
  var y := 1;
  {x == 1 && y == 1}
  {forall s :: x == 1 && y == 1}
  var s := 0;
  {x == 1 && y == 1}
  {x == 1 && y == fusc(1)}
  {x == 1 && y == fusc(2 * 1)}
  {true && x == 1 && y == fusc(2)}
  {1 > 0 && x == fusc(1) && y == fusc(1 + 1)}
  n := 1;
  {n > 0 && x == fusc(n) && y == fusc(n + 1)}
  while (num != x && den != y)
    invariant n > 0 && x == fusc(n) && y == fusc(n + 1)
    decreases -n
  {
    {n > 0 && x == fusc(n) && y == fusc(n + 1)}      -- strengthen with
invariants
    {n > 0}
    {(n + 1) >= 0}
    n := n + 1;
    {n >= 0}
    {n >= 0 && true}
    {n >= 0 fusc(n) == fusc(n)}
    {n >= 0 && forall b' :: b' == fusc(n) == fusc(n)}
    x := ComputeFusc(n);
    {n >= 0 && x == fusc(n)}
    {n >= 0 && x == fusc(n) && true}
    {n >= 0 && x == fusc(n) && fusc(n + 1) == fusc(n + 1)}
    s := n + 1;
    {n >= 0 && x == fusc(n) && fusc(s) == fusc(n + 1)}
    {n >= 0 && x == fusc(n) && forall b' :: b' == fusc(s) ==> b' == fusc(n +
1)}}
    y := ComputeFusc(s);
    {n > 0 && x == fusc(n) && y == fusc(n + 1)}
  }
}

```