```
def shift(p: Z, y: Z, N: Z) {
  Contract (
    Requires (x * p + y * q == N),
    Modifies (x, q),
    Ensures (x * p + y * q == N)
  X = X - Y
  q = q + p
assume(x + q == N)
shift(1, 1, N)
assert(x + q == N)
```