Algorithm 1 Restoring Division

Input: Dividend Q, Divisor M, bits n
$A \leftarrow 0$
for $i = 1$ to n **do**
  Shift left (A, Q) by 1 bit
  $A \leftarrow A - M$
  if $A < 0$ **then**
    $Q_0 \leftarrow 0$
    $A \leftarrow A + M$ {Restore}
  else
    $Q_0 \leftarrow 1$
  end if
end for
Output: Quotient Q, Remainder A

Algorithm 2 Non-Restoring Division

Input: Dividend Q, Divisor M, bits n
$A \leftarrow 0$
for $i = 1$ to n **do**
  Shift left (A, Q) by 1 bit
  if $A \geq 0$ **then**
    $A \leftarrow A - M$
  else
    $A \leftarrow A + M$
  end if
  if $A \geq 0$ **then**
    $Q_0 \leftarrow 1$
  else
    $Q_0 \leftarrow 0$
  end if
end for
if $A < 0$ **then**
  $A \leftarrow A + M$
end if
Output: Quotient Q, Remainder A