procedure Jacobi (n, m, r);  value n, m;
integer n, m, r;
comment Jacobi computes the value of the Jacobi symbol \((n/m)\),
where \(m\) is odd, by the law of quadratic reciprocity. The parameter \(r\) is assigned one of the values \(-1, 0,\) or \(1\) if \(m\) is odd. If \(m\) is even, the symbol is undefined and \(r\) is assigned the value 2.
For odd \(m\), the routine provides a test of whether \(m\) and \(n\) are relatively prime. The value of \(r\) is 0 if and only if \(m\) and \(n\) have a nontrivial common factor. In the special case where \(m\) is prime, 
\(r = -1\) if and only if \(n\) is a quadratic nonresidue of \(m\);
begin
  integer s;
  Boolean p, q;
Boolean procedure parity (x);  value x;  integer x;
comment The value of the parity function is true if \(x\) is odd, false if \(x\) is even;
begin
  parity := x ÷ 2 × 2 ≠ x
end parity;
if ¬ parity (m) then begin r := 2;  go to exit end;
p := true;
loop:  n := n − n ÷ m × m;
  q := false;
  if n ≤ 1 then go to done;
even:  if ¬ parity (n) then
begin
  q := ¬ q;
  n := n ÷ 2;
  go to even
end n now odd;
if q then if parity ((m↑2 − 1) ÷ 8) then p := ¬ p;
if n = 1 then go to done;
if parity ((m − 1) × (n − 1) ÷ 4) then p := ¬ p;
  s := m;  m := n;  n := s;  go to loop;
done:  r := if n = 0 then 0 else if p then 1 else −1;
exit:  end Jacobi

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