ALGORITHM 49
SPHERICAL NEUMANN FUNCTION

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REAL procedure SPHBEN (r,x); value r,x; real r,x;
comment This procedure computes the spherical Neumann function \((\pi/2x)!N_{r+1,2}(x)\). Infinity is represented by 10^12.

begin real z, g, t;
if x=0 then
begin s := 10 \uparrow\downarrow 47;
go to gate
end;
s := -\cos (x)/x;
if r = 0 then
go to gate;
t := \sin (x)/x;
for g := 1 step 1 until r do
begin z := s;
s := s \times (g+g-1)/(x-t);
t := z
end;
gate: SPHBEN := s
end SPHBEN;