```
> # Recurrence and initial conditions
  eq := u(k) + 11*u(k-1) + 45*u(k-2) + 81*u(k-3) + 54*u(k-4) = 0:
  IC := { u(0) = 4, u(1) = -24, u(2) = 162, u(3) = -918 }:

  # (1) u4 from the difference equation
  u4 := -(11*u(3) + 45*u(2) + 81*u(1) + 54*u(0)):
  u4 := eval(u4, IC); # 4536

  # (2) Explicit (non-recursive) solution
  sol := rsolve({eq, op(IC)}, u(k)):
  sol := simplify(sol); # (-3)^k*(3*k^2 + k + 4)

  # (3) u19 using the explicit solution
  u19 := eval(sol, k = 19):

  # Display
  printf("u4 = %a\nu_k = %a\nu19 = %a\n", u4, sol, u19);
```

$$u4 := 4536$$

$$sol := (-1)^k 3^k (3k^2 + k + 4)$$

```
u4 = 4536
u_k = (-1)^k*3^k*(3*k^2+k+4)
u19 = -1285461182502
```

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>
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