O19-102

```
> restart:
> n:=31;a:=[1]:for i from 1 to 30 do
  aa:=i*a[i]+(-1)^i;a:=[op(a),aa] od:a;
```

$$n := 31$$

[1, 0, 1, 2, 9, 44, 265, 1854, 14833, 133496, 1334961, 14684570, 176214841, 2290792932, 32071101049, 481066515734, 7697064251745, 130850092279664, 2355301661033953, 44750731559645106, 895014631192902121, 18795307255050944540, 413496759611120779881, 9510425471055777937262, 228250211305338670494289, 5706255282633466762357224, 148362637348470135821287825, 4005791208408693667174771274, 112162153835443422680893595673, 3252702461227859257745914274516, 97581073836835777732377428235481]

```
> b:=evalf([seq(a[i]/(i-1)!,i=2..7),seq(a[10*i+1]/(10*i)!,i=1..3)]
  );
```

b := [0., 0.5000000000, 0.3333333333, 0.3750000000, 0.3666666667, 0.3680555556, 0.3678794643, 0.3678794412, 0.3678794412]

```
> f:=exp(-x)/(1-x);ff:=series(f,x=0,32);d:=evalf([coeffs(convert(f
  f,polynom),x)]):dd:=[seq(d[i],i=2..7),seq(d[10*i+1],i=1..3)];
```

$$f := \frac{e^{(-x)}}{1-x}$$

$$ff := 1 + \frac{1}{2}x^2 + \frac{1}{3}x^3 + \frac{3}{8}x^4 + \frac{11}{30}x^5 + \frac{53}{144}x^6 + \frac{103}{280}x^7 + \frac{2119}{5760}x^8 + \frac{16687}{45360}x^9 + \frac{16481}{44800}x^{10} + \frac{1468457}{3991680}x^{11} + \frac{16019531}{43545600}x^{12} + \frac{63633137}{172972800}x^{13} + \frac{2467007773}{6706022400}x^{14} + \frac{34361893981}{93405312000}x^{15} + \frac{15549624751}{42268262400}x^{16} + \frac{8178130767479}{22230464256000}x^{17} + \frac{138547156531409}{376610217984000}x^{18} + \frac{92079694567171}{250298560512000}x^{19} + \frac{4282366656425369}{11640679464960000}x^{20} + \frac{72289643288657479}{196503623737344000}x^{21} + \frac{6563440628747948887}{17841281393295360000}x^{22} + \frac{39299278806015611311}{10682651544993792000}x^{23} + \frac{9923922230666898717143}{2697601746666258432000}x^{24} + \frac{7925354559213148281051 7}{2154334728240414720000000}x^{25} + \frac{5934505493938805432851513}{1613165844506422542336000}x^{26} + \frac{1400626296646396387124045 9}{3807297010635787468800000}x^{27} + \frac{4615726495285737558884510 11}{1254684545727217532928000000}x^{28} + \frac{1161679450438521163480683669 47}{3157772140621322126622720000000}x^{29} + \frac{3364864615063302680426807870189}{9146650338351415815045120000000}x^{30} + \frac{2777789980662910109920753237 19}{7550816027711591200849920000000}x^{31} + O(x^{32})$$

dd := [0.5000000000, 0.3333333333, 0.3750000000, 0.3666666667, 0.3680555556, 0.3678571429, 0.3678794392, 0.3678794412, 0.3678794412]

```
> permut:=proc(l)
  local n,vu,i,p;
  n:=nops(l);
  vu:=[seq(0,i=1..n)];
  for i from 1 to n do
          if l[i]>-1 and l[i]<n+1 then
                vu[l[i]]:=1;
          fi;
  od;
  p:=product('vu[i]','i'=1..n);
  if p=0 then
          return false
  else
          return true
  fi;
  end;
```

permut := **proc**(*l*)
local *n*, *vu*, *i*, *p*;
n := nops(*l*);
vu := [seq(0, *i* = 1 .. *n*)];
for *i* **to** *n* **do if** -1 < *l*[*i*] **and** *l*[*i*] < *n* + 1 **then** *vu*[*l*[*i*]] := 1 **end if end do**;
p := product('*vu*[*i*]', '*i*' = 1 .. *n*);
if *p* = 0 **then return** *false* **else return** *true* **end if**
end proc

```
> l:=[1,1,2,3]:permut(l);
```

false

```
> l:=[4,1,5,2,3]:permut(l);
```

true

```
>
```