

→ / · computation of
the approximation of e · /

(%i1) / · Use the definition of e · /

$a(n) := (1 + 1/n)^n;$

(%o1) $a(n) := \left(1 + \frac{1}{n}\right)^n$

(%i2) / · a(n), n=9999,10000,10001 · /

for n from 9999 step 1 thru 10001 do print(float(a(n)));

2.718145913234948

2.718145926825225

2.718145940412784

(%o2) done

(%i3) float(%e);

(%o3) 2.718281828459045

(%i4) / · Use the Taylor expansion of e^1 · /

$b(n) := \sum_{k=0}^n \frac{1}{k!};$

(%o4) $b(n) :=$

$$\sum_{k=0}^n \frac{1}{k!}$$

(%i5) / · b(n), n=14,15,16,17,18 · /

for n from 14 step 1 thru 18 do print(float(b(n)));

2.718281828458229

2.718281828458994

2.718281828459042

2.718281828459045

2.718281828459045

(%o5) done

(%i6) float(%e);

(%o6) 2.718281828459045