Usiamo Singular https://www.singular.uni-kl.de:8003/

ESEMPIO 1

```
> // calcolo simbolico
. ring R = 0, x, lp;
> int i;
> number a = 1/32;
> for (k=1; k<=20; k=k+1){a = a*33 - 1;a;};
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
1/32
```

```
> // calcolo numerico
. ring R = 0, x, lp;
. ring S = real, x, lp;
> int k;
> number a = 1/32;
> for (k=1; k<=20; k=k+1){a = a*33 - 1;a;};
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
```

(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)
(3.125e-02)

ESEMPIO 2

```
> // calcolo simbolico
. ring R = 0, x, lp;
> int i;
> number a = 1/10;
> for (k=1; k<=20; k=k+1){a = a*11 - 1;a;};
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10
1/10

. // calcolo numerico
```

```
. ring S = real, x, lp;
> int k;
> number a = 1/10;
> for (k=1; k<=20; k=k+1){a = a*11 - 1;a;};
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.000e-01)
(1.003e-01)
(1.031e-01)
(1.337e-01)
(4.710e-01)
(4.181e+00)
(4.499e+01)
(4.939e+02)
(5.432e+03)
```

Macaulay2, version 1.17.0.1

with packages: ConwayPolynomials, Elimination, IntegralClosure, InverseSystems, LLLBases, MinimalPrimes, PrimaryDecomposition, ReesAlgebra, Saturation, TangentCone

```
i1 : -- calcolo simbolico
a = 1/10

o1 = 1/10

o1 :  Q

i2 : for k from 1 to 20 list a=a*11-1

o2 = {1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10,1/10
,1/10,1/10,1/10}

o2 :  List
```

```
i3 : -- calcolo numerico
a = 0.1

o3 = .1

o3 : R (of precision 53)

i4 : for k from 1 to 20 list a=a*11-1

o4
={.1,.1,.1,.1,.1,.1,.1,.1,.1,.1,.100002,.100025,.100279,.103066,.133729,.471014,4.18116,4
4.9927,493.92,5432.12}

o4 : List
```