

Determinant by Laplace Expansion

input : square matrix $[A]$

output: $\det[A]$

```
1 function Det([A])
2    $n \leftarrow \text{nrows}([A])$ 
3   if  $n = 1$  then
4     return  $a_{11}$ 
5   end
6    $d \leftarrow 0$ 
7   for  $j \leftarrow 1$  to  $n$  do
8      $[M] \leftarrow [A]$  with row 1 and column  $j$  deleted
9      $d \leftarrow d + (-1)^{1+j} a_{1j} \cdot \text{Det}([M])$ 
10  end
11  return  $d$ 
```