

Create recursion with script

In this example we illustrate how to create a recursion with a MatDeck script to find the sine values of the matrix elements. The code of the recursive function is given below.

```
recursiveSin(a)
{
  1 if(type(a) == "matrix")
  {
    1 b:=a
    2 for(r:=0 , r<rows(b) , r+=1)
    {
      1 for(c:=0 , c<cols(b) , c+=1)
      {
        1 //get value at r, c position and call this function recursively
        2 k:= recursiveSin(value at(b , r , c))
        3 b= set value at(b , k , r , c)
      }
    }
    3 return(b)
  }
  2 return(sin(a))
}
```

```
mat:=  $\begin{bmatrix} 1 & 2 \\ 3 & 3 \end{bmatrix}$ 
```

//MatDeck built-in function can calculate this too

```
r:= recursiveSin(mat)
```

```
r1:= sin(mat)
```

```
r =  $\begin{bmatrix} 0.841 & 0.909 \\ 0.141 & 0.141 \end{bmatrix}$ 
```

```
r1 =  $\begin{bmatrix} 0.841 & 0.909 \\ 0.141 & 0.141 \end{bmatrix}$ 
```