

```

1 from program2_1 import Dvector
2 from program2_2 import Dmatrix
3
4 ROW    = 3 # 行の要素数
5 COLUMN = 4 # 列の要素数
6
7 def main():
8     global ROW, COLUMN
9
10    a = Dmatrix(1, ROW, 1, COLUMN) # 行列 a[1...ROW][1...COLUMN]
11    # 行列の定義
12    print("A=")
13    for i in range(1, ROW+1):
14        for j in range(1, COLUMN+1):
15            a[i][j] = 2.0 * (i + j) * (-1.0) ** j
16            print(a[i][j], end="\t")
17        print()
18
19    print(f"Aの1ノルムは{matrix_norm1(a)}")
20    print(f"Aの最大値ノルムは{matrix_norm_max(a)}")
21
22
23 # 1ノルムの計算
24 def matrix_norm1(a: Dmatrix):
25     m1, m2 = a.row_head_idx, a.row_last_idx
26     n1, n2 = a.col_head_idx, a.col_last_idx
27     work = Dvector(n1, n2) # ベクトルwork[n1...n2]
28
29     # 列和の計算
30     for j in range(n1, n2+1):
31         work[j] = 0.0
32         for i in range(m1, m2+1):
33             work[j] += abs(a[i][j])
34
35     return max(work)
36
37
38 # 最大値ノルムの計算
39 def matrix_norm_max(a: Dmatrix):
40     m1, m2 = a.row_head_idx, a.row_last_idx
41     n1, n2 = a.col_head_idx, a.col_last_idx
42     work = Dvector(m1, m2)
43
44     # 行和の計算
45     for i in range(m1, m2+1):
46         work[i] = 0.0
47         for j in range(n1, n2+1):
48             work[i] += abs(a[i][j])
49
50     return max(work)
51
52
53 if __name__ == "__main__":
54     main()

```