

Program for dice game v function (Example 1, page 91).

```

DIM f(6),u(6),v(6)
FOR i=1 to 5
  LET f(i)=i
  LET u(i)=5
NEXT i
LET f(6)=0
LET u(6)=0
PRINT using "###":n;
  FOR i=1 to 6
    PRINT using " #.#####":v(i);
    LET u(i)=v(i)
  NEXT i
  PRINT
FOR n=1 to 20
  LET sum=0
  FOR i=1 to 6
    LET sum=sum+u(i)
  NEXT i
  FOR i=1 to 5
    LET v(i)=max(sum/6,f(i))
  NEXT i
  LET v(6)=max(u(6),f(6))
  PRINT using "###":n;
  FOR i=1 to 6
    PRINT using " #.#####":v(i);
    LET u(i)=v(i)
  NEXT i
  PRINT
NEXT n
END

```

0	5.00000000	5.00000000	5.00000000	5.00000000	5.00000000	.00000000
1	4.16666667	4.16666667	4.16666667	4.16666667	5.00000000	.00000000
2	3.61111111	3.61111111	3.61111111	4.00000000	5.00000000	.00000000
3	3.30555556	3.30555556	3.30555556	4.00000000	5.00000000	.00000000
4	3.15277778	3.15277778	3.15277778	4.00000000	5.00000000	.00000000
5	3.07638889	3.07638889	3.07638889	4.00000000	5.00000000	.00000000
6	3.03819444	3.03819444	3.03819444	4.00000000	5.00000000	.00000000

7	3.01909722	3.01909722	3.01909722	4.00000000	5.00000000	.00000000
8	3.00954861	3.00954861	3.00954861	4.00000000	5.00000000	.00000000
9	3.00477431	3.00477431	3.00477431	4.00000000	5.00000000	.00000000
10	3.00238715	3.00238715	3.00238715	4.00000000	5.00000000	.00000000
11	3.00119358	3.00119358	3.00119358	4.00000000	5.00000000	.00000000
12	3.00059679	3.00059679	3.00059679	4.00000000	5.00000000	.00000000
13	3.00029839	3.00029839	3.00029839	4.00000000	5.00000000	.00000000
14	3.00014920	3.00014920	3.00014920	4.00000000	5.00000000	.00000000
15	3.00007460	3.00007460	3.00007460	4.00000000	5.00000000	.00000000
16	3.00003730	3.00003730	3.00003730	4.00000000	5.00000000	.00000000
17	3.00001865	3.00001865	3.00001865	4.00000000	5.00000000	.00000000
18	3.00000932	3.00000932	3.00000932	4.00000000	5.00000000	.00000000
19	3.00000466	3.00000466	3.00000466	4.00000000	5.00000000	.00000000
20	3.00000233	3.00000233	3.00000233	4.00000000	5.00000000	.00000000
21	3.00000117	3.00000117	3.00000117	4.00000000	5.00000000	.00000000
22	3.00000058	3.00000058	3.00000058	4.00000000	5.00000000	.00000000
23	3.00000029	3.00000029	3.00000029	4.00000000	5.00000000	.00000000
24	3.00000015	3.00000015	3.00000015	4.00000000	5.00000000	.00000000
25	3.00000007	3.00000007	3.00000007	4.00000000	5.00000000	.00000000
26	3.00000004	3.00000004	3.00000004	4.00000000	5.00000000	.00000000
27	3.00000002	3.00000002	3.00000002	4.00000000	5.00000000	.00000000
28	3.00000001	3.00000001	3.00000001	4.00000000	5.00000000	.00000000
29	3.00000000	3.00000000	3.00000000	4.00000000	5.00000000	.00000000

Program for random walk optimal stopping problem (Example 2, page 91).

```

DIM f(0:6),u(0:6),v(0:6)
DATA 0,2,4,5,9,3,0
DATA 0,9,9,9,9,9,0
FOR i=0 to 6
  READ f(i)
NEXT i
FOR i=0 to 6
  READ u(i)
NEXT i
PRINT using "###":1;
FOR i=0 to 6
  PRINT using " #.#####":u(i);

```

```

NEXT i
PRINT
FOR n=1 to 39
  LET v(0)=max(u(0),f(0))
  LET v(6)=max(u(6),f(6))
  FOR i=1 to 5
    LET v(i)=max((u(i-1)+u(i+1))/2,f(i))
  NEXT i
  PRINT using "###":n+1;
  FOR i=0 to 6
    PRINT using " #.#####":v(i);
    LET u(i)=v(i)
  NEXT i
  PRINT
NEXT n
END

```

1	.0000000	9.0000000	9.0000000	9.0000000	9.0000000	9.0000000	.0000000
2	.0000000	4.5000000	9.0000000	9.0000000	9.0000000	4.5000000	.0000000
3	.0000000	4.5000000	6.7500000	9.0000000	9.0000000	4.5000000	.0000000
4	.0000000	3.3750000	6.7500000	7.8750000	9.0000000	4.5000000	.0000000
5	.0000000	3.3750000	5.6250000	7.8750000	9.0000000	4.5000000	.0000000
6	.0000000	2.8125000	5.6250000	7.3125000	9.0000000	4.5000000	.0000000
7	.0000000	2.8125000	5.0625000	7.3125000	9.0000000	4.5000000	.0000000
8	.0000000	2.5312500	5.0625000	7.0312500	9.0000000	4.5000000	.0000000
9	.0000000	2.5312500	4.7812500	7.0312500	9.0000000	4.5000000	.0000000
10	.0000000	2.3906250	4.7812500	6.8906250	9.0000000	4.5000000	.0000000
11	.0000000	2.3906250	4.6406250	6.8906250	9.0000000	4.5000000	.0000000
12	.0000000	2.3203125	4.6406250	6.8203125	9.0000000	4.5000000	.0000000
13	.0000000	2.3203125	4.5703125	6.8203125	9.0000000	4.5000000	.0000000
14	.0000000	2.2851563	4.5703125	6.7851562	9.0000000	4.5000000	.0000000
15	.0000000	2.2851563	4.5351562	6.7851562	9.0000000	4.5000000	.0000000
16	.0000000	2.2675781	4.5351562	6.7675781	9.0000000	4.5000000	.0000000
17	.0000000	2.2675781	4.5175781	6.7675781	9.0000000	4.5000000	.0000000
18	.0000000	2.2587891	4.5175781	6.7587891	9.0000000	4.5000000	.0000000
19	.0000000	2.2587891	4.5087891	6.7587891	9.0000000	4.5000000	.0000000
20	.0000000	2.2543945	4.5087891	6.7543945	9.0000000	4.5000000	.0000000
21	.0000000	2.2543945	4.5043945	6.7543945	9.0000000	4.5000000	.0000000
22	.0000000	2.2521973	4.5043945	6.7521973	9.0000000	4.5000000	.0000000
23	.0000000	2.2521973	4.5021973	6.7521973	9.0000000	4.5000000	.0000000

24	.0000000	2.2510986	4.5021973	6.7510986	9.0000000	4.5000000	.0000000
25	.0000000	2.2510986	4.5010986	6.7510986	9.0000000	4.5000000	.0000000
26	.0000000	2.2505493	4.5010986	6.7505493	9.0000000	4.5000000	.0000000
27	.0000000	2.2505493	4.5005493	6.7505493	9.0000000	4.5000000	.0000000
28	.0000000	2.2502747	4.5005493	6.7502747	9.0000000	4.5000000	.0000000
29	.0000000	2.2502747	4.5002747	6.7502747	9.0000000	4.5000000	.0000000
30	.0000000	2.2501373	4.5002747	6.7501373	9.0000000	4.5000000	.0000000
31	.0000000	2.2501373	4.5001373	6.7501373	9.0000000	4.5000000	.0000000
32	.0000000	2.2500687	4.5001373	6.7500687	9.0000000	4.5000000	.0000000
33	.0000000	2.2500687	4.5000687	6.7500687	9.0000000	4.5000000	.0000000
34	.0000000	2.2500343	4.5000687	6.7500343	9.0000000	4.5000000	.0000000
35	.0000000	2.2500343	4.5000343	6.7500343	9.0000000	4.5000000	.0000000
36	.0000000	2.2500172	4.5000343	6.7500172	9.0000000	4.5000000	.0000000
37	.0000000	2.2500172	4.5000172	6.7500172	9.0000000	4.5000000	.0000000
38	.0000000	2.2500086	4.5000172	6.7500086	9.0000000	4.5000000	.0000000
39	.0000000	2.2500086	4.5000086	6.7500086	9.0000000	4.5000000	.0000000
40	.0000000	2.2500043	4.5000086	6.7500043	9.0000000	4.5000000	.0000000