

CS 1713, Three/Halves Program, Mon Mar 23 1998

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runner% cat th.c
/* th: three/halves program. Always ends up
   at 1. Written by NR Wagner, 28 Mar 1997 */
#include <stdio.h>

void run(int n);

int main()
{
    int n;
    while(scanf("%i", &n) != EOF)
        run(n);
    return 0;
}

/* run: follow one run to the end */
void run(int n)
{
    while (n != 1) {
        printf("%i ", n);
        if ((n%2) == 0)
            n = n/2;
        else
            n = (3*n + 1)/2;
    }
    printf("%i\n", n);
}
runner% cc -o th th.c
runner% th
1
1
2
2 1
3
3 5 8 4 2 1
4
4 2 1
5
5 8 4 2 1
6
6 3 5 8 4 2 1
7
7 11 17 26 13 20 10 5 8 4 2 1
8
8 4 2 1
9
9 14 7 11 17 26 13 20 10 5 8 4 2 1
10
10 5 8 4 2 1
11
11 17 26 13 20 10 5 8 4 2 1
12
12 6 3 5 8 4 2 1
13
13 20 10 5 8 4 2 1
14
14 7 11 17 26 13 20 10 5 8 4 2 1
15
15 23 35 53 80 40 20 10 5 8 4 2 1
16
16 8 4 2 1
17
17 26 13 20 10 5 8 4 2 1
18
18 9 14 7 11 17 26 13 20 10 5 8 4 2 1
19
19 29 44 22 11 17 26 13 20 10 5 8 4 2 1
20
20 10 5 8 4 2 1
21
21 32 16 8 4 2 1
22
22 11 17 26 13 20 10 5 8 4 2 1
23
23 35 53 80 40 20 10 5 8 4 2 1
24
24 12 6 3 5 8 4 2 1
25
25 38 19 29 44 22 11 17 26 13 20 10 5 8 4 2 1
26
26 13 20 10 5 8 4 2 1
27
27 41 62 31 47 71 107 161 242 121 182 91 137
206 103 155 233 350 175 263 395 593 890 445 668
334 167 251 377 566 283 425 638 319 479 719
1079 1619 2429 3644 1822 911 1367 2051 3077
4616 2308 1154 577 866 433 650 325 488 244 122
61 92 46 23 35 53 80 40 20 10 5 8 4 2 1
28
28 14 7 11 17 26 13 20 10 5 8 4 2 1
29
29 44 22 11 17 26 13 20 10 5 8 4 2 1
30
30 15 23 35 53 80 40 20 10 5 8 4 2 1
runner%

```