Practice Midterm Question: Walkthrough

Your Task

Prove your understanding of a program and describe each step that is executed. You need to:

1. Identify the line # (must match with the numbering provided in the original code below)
2. Briefly describe what happened with each executed line
3. All variables MUST be substituted with their current values
4. All outputs (printf) that refer to variables, MUST substitute with the variable values
5. ONLY the executed line should be described and MUST be in the correct sequence

Program Source Code

```
01| //
02| // Sample Walkthrough Question
03| // - Preparation for midterm test
04| //
05|
06| #define _CRT_SECURE_NO_WARNINGS
07|
08| #include <stdio.h>
09|
10| #define MAX_STUDENTS 3
11|
12| int main(void)
13| {
14|     int studentID[MAX_STUDENTS] =    { 831,   323,   742 };
15|     int bYear[MAX_STUDENTS] =        { 2004,  1983,  1991 };
16|     float finalGrade[MAX_STUDENTS] = { 49.5f, 20.5f, 80.5f };
17|
18|     int i;
19|     float sumGrades = 0.0f;
20|
21|     if (studentID[1] % 2)
22|     {
23|         for (i = 0; i < MAX_STUDENTS; i++)
24|         {
25|             if (!(bYear[i] % 2))
26|             {
27|                 sumGrades += finalGrade[i] - 2.5f;
28|             }
29|             else
30|             {
31|                 sumGrades += finalGrade[i] + 1.0f;
32|             }
33|         }
34|     }
35|     else
36|     {
37|         for (i = MAX_STUDENTS - 1; i > -1; i--)
38|         {
39|             if (bYear[i] % 2)
40|             {
41|                 sumGrades += finalGrade[i] + 2.0f;
42|             }
43|             else
44|             {
45|                 sumGrades += finalGrade[i] - 1.5f;
46|             }
47|         }
48|     }
49|
50|     printf("Average grade: %.1f\n", sumGrades / MAX_STUDENTS);
51|
52|     return 0;
53| }
```