```c
#include <stdio.h>

#define NUM_ROWS 5
#define NUM_COLUMNS 3
#define DEPTH 2

int main(void)
{
    //variable declaraions

    //IN-LINE INITIALIZATION
    int iArray[NUM_ROWS][NUM_COLUMNS][DEPTH] = { { { 9, 18 }, { 27, 36 }, { 45, 54 } },
                                                 { { 8, 16 }, { 24, 32 }, { 40, 48 } },
                                                 { { 7, 14 }, { 21, 28 }, { 35, 42 } },
                                                 { { 6, 12 }, { 18, 24 }, { 30, 36 } },
                                                 { { 5, 10 }, { 15, 20 }, { 25, 30 } } };
    int i, j, k;

    int iArray_1D[NUM_ROWS * NUM_COLUMNS * DEPTH]; // 5 * 3 * 2 ELEMENTS => 30 ELEMENTS IN 1D ARRAY

    //code

    // ****** DISPLAY 3D ARRAY ******
    printf("\n\n");
    printf("Elements In The 3D Array : \n\n");
    for (i = 0; i < NUM_ROWS; i++)
    {
        printf("****** ROW %d ******\n", (i + 1));
        for (j = 0; j < NUM_COLUMNS; j++)
        {
            printf("****** COLUMN %d ******\n", (j + 1));
            for (k = 0; k < DEPTH; k++)
            {
                printf("iArray[%d][%d][%d] = %d\n", i, j, k, iArray[i][j][k]);
            }
            printf("\n");
        }
        printf("\n");
    }

    // ****** CONVERTING 3D TO 1D ******
    for (i = 0; i < NUM_ROWS; i++)
    {
        for (j = 0; j < NUM_COLUMNS; j++)
        {
            for (k = 0; k < DEPTH; k++)
```

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47              {
48                  iArray_1D[(i * NUM_COLUMNS * DEPTH) + (j * DEPTH) + k] = iArray[i]
                      [j][k];
49              }
50          }
51      }
52
53      // ****** DISPLAY 1D ARRAY ******
54      printf("\n\n\n\n");
55      printf("Elements In The 1D Array : \n\n");
56      for (i = 0; i < (NUM_ROWS * NUM_COLUMNS * DEPTH); i++)
57      {
58          printf("iArray_1D[%d] = %d\n", i, iArray_1D[i]);
59      }
60
61      return(0);
62  }
63
64
```