### 課題 10-1〜10-6 のプログラム例

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#include <stdio.h>

int sum_even(int n);
int sum_odd(int n);
int kaijo(int n);
int sum_array(int *a, int n);
int length(char *str, int n);
double sum_array2(double *a, int n);

int sum_even(int n)
{
    if(n > 0) {
        printf("%d + ", n);
        return n + sum_even(n-2);
    } else {
        printf("%d = ", n);
        return n;
    }
}

int sum_odd(int n)
{
    if(n > 1) {
        printf("%d + ", n);
        return n + sum_odd(n-2);
    } else {
        printf("%d = ", n);
        return n;
    }
}

int kaijo(int n)
{
    if(n > 1) {
        printf("%d * ", n);
        return n * kaijo(n-1);
    } else {
        printf("%d = ", n);
        return n;
    }
}

int sum_array(int *a, int n)
{
    if(n > 0) {
        printf("%d + ", a[n]);
        return a[n] + sum_array(a, n-1);
    } else {
        printf("%d = ", a[n]);
        return a[n];
    }
}

int length(char *str, int n)
{
    if(str[n] != '\0') {
        //printf("%c + ", str[n]);
        return 1 + length(str, n+1);
    } else {
        //printf("%c = ", a[n]);
        return 0;
    }
}

double sum_array2(double *a, int n)
{
    if(n > 0) {
        printf("%lf + ", a[n]);
        return a[n] + sum_array2(a, n-1);
    } else {
        printf("%lf = ", a[n]);
        return a[n];
    }
}

int main(void)
{
    //check for sum_even
    printf("%d\n", sum_even(6));
    printf("%d\n", sum_even(10));
    //check for sum_odd
    printf("%d\n", sum_odd(7));
    printf("%d\n", sum_odd(15));
    //check for kaijo
    printf("%d\n", kaijo(5));
    printf("%d\n", kaijo(10));
    //check for sum_array
    int a1[6] = {8, 3, 6, 7, 1, 4};
    int a2[3] = {5, 2, 9};
    printf("%d\n", sum_array(a1, 5));
    printf("%d\n", sum_array(a2, 2));
    //check for length
    char str1[] = "Hello!";
    char str2[] = "Good Job!";
    printf("%d\n", length(str1, 0));
    printf("%d\n", length(str2, 0));
    //check for sum_array2
    double d1[5] = {8.3, 3.4, 6.2, 7.5, 1.1};
    printf("%lf\n", sum_array2(d1, 4));

    return 0;
}
```