Problem Set 4 Exercise #21: Recursive Sum

Reference: Lecture 12 notes

Learning objective: Recursion

Estimated completion time: 15 minutes

Problem statement:

Write a recursive function

```
int f(int x)
```

that accepts a positive integer **x** and calculate **f(x)** according to the following formula.

$$f(x) = \begin{cases} 1 & if\ x = 0, 1, 2 \\ f(x-1) + f(x-2) + f(x-3) & if\ x\ is\ even\ and\ x \geq 3 \\ f(x-1) + f(x-2) & if\ x\ is\ odd\ and\ x \geq 3 \end{cases}$$

Write a program **recursive_sum.c** for the above task. You should **NOT** use any loop structures (*for*, *while* or *do-while* loop) in your program.

Sample run #1:

```
Enter x (x >= 0): 2
f(x) = 1
```

Sample run #2:

```
Enter x (x >= 0): 3
f(x) = 2
```

Sample run #3:

```
Enter x (x >= 0): 5
f(x) = 6
```