

Agenda / Learning Objectives:

1. Review the answer for question 1 in professor Ryba's recursion exercises
2. Recognize the common pitfalls in writing a recursion function
3. Starting from the easy level with 1 input parameter, practice the recursion exercises from prac2.pdf

Pitfalls (from Absolute C++)

Infinite Recursion. Infinite recursion is similar to infinite loops in that it will run forever. One of the most common ways a program will have infinite recursion is if the recursive method does not have a base case. Also, for the recursive cases, it is important to ensure that repeated calls will eventually lead you to the base case of the problem.

Stack Overflow. When using recursion, successive recursive calls go on the stack. Since the size of the stack is finite. If too many recursive calls are executed, the stack becomes full and trying to place another item on the stack will cause a stack overflow. This error is common if you have an infinite recursion.

[Professor Ryba's prac2.pdf](#) on Recursion: | [Solutions](#)

- 2 input parameters: 12, 16; 24, 28; 32, 36; 40, 44; 93

- assigning return value to a variable: 64, 68; 113; 171, 175

- array and recursion: 48

- 1 parameter: (easy) 4, 8; 79, 149, 94; **109**; 111, 114, 116; 163, 165, 167; 179; 183; 191; **223**

(intermediate) 20; 52, 56; **60**; 71, 75; 85; 110, 112, 115; 127, 139; 131, 135; 143, 147, 151, 155; 195; 199, 203; **215**; 219

(challenging) 187

(alternate solution) 211