

Q: Java: Why does this method result in an infinite loop? While solving a question, I came across the following method. It seemed to result in an infinite loop. `public void exec() { double num1 = 1; double num2 = 1; for (;;) { if (num1 == 1 && num2 == 1) break; num1 = num1 * num2; num2 = num2 * num1; } }` After looking at the solutions, I didn't see what went wrong. The only thing I can think of is that I shouldn't have used 'for (;;)' in this particular case. Can someone please explain to me why it would result in an infinite loop? A: The infinite loop is because of `if (num1 == 1 && num2 == 1) break;` You break the loop when `num1 == 1 && num2 == 1`, that's why it never stops! Here you want to continue the loop when the conditions are fulfilled so you need to remove that break statement A: With break the code execution jumps to the next instruction and the statement following it. Without break, it doesn't and the inner loop executes forever. A: Your loop is infinite because it always executes the break statement. You do not want that. The line is semantically equivalent to: `double num1 = 1; double num2 = 1; while (true) { num1 = num1 * num2; num2 = num2 * num1; }` Now, it is clear that this loops infinitely. To solve it, make the conditional if into a while-loop: `public void exec() { double num1 = 1; double num2 = 1; while (num1 != 1 || num2 != 1) { if (num1 == 1 && num2 == 1) break;`

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