Question 1 (20 points): You have been hired by a very important supplier of computer servers for Internet Service Providers (ISPs). The most popular program run by ISPs has a CPI of 1.5 clocks per instructions. This high CPI is dominated by a class of instructions C_i. Instructions belonging to C_i are executed 40% of the time and, on average, each instruction of class C_i takes 3 cycles to execute. Lets call the execution time of this original machine T_{orig}.

A processor-architecture team in your company has proposed a design change to the processor that will reduce the average number of clocks executed by C_i instructions to 2 clock cycles, but will increase the clock cycle by 20%. Lets call the execution time of this machine T_{proc}

The head of your compiler team proposed that, with a larger development team, they could implement compiler optimizations that would reduce the number of C_i instructions executed by 35% without affecting the number of execution of instructions of other classes. Lets call the execution time of this machine T_{comp}

Given budget constraints, you only can afford to approve one of these changes.

1. **(10 points)** Which solution is faster and by how much?
2. **(10 points)** How much faster is the better solution when compared with the original machine?