CSE 340: Computer Architecture
Understanding the question is part of the exam.

Name:	ID:	Section:

You are designing two new machine learning systems:

- System A takes 4 days to complete its tasks.
- System B takes 6 days to complete, but 70% of its total time depends on a specific process.

If you improve that specific process in System B by a factor of 3, calculate the following:

1. The new execution time of System B.[2]
2. Given a reference time of 8 days for both System A and System B, calculate the SPEC ratios for both systems after the improvement in System B.[3]
3. Determine the geometric mean of these SPEC ratios.[2]

Consider the following classes of tasks for a particular CPU performing a task.

	IC (10^9)	CPI
Task A	5	3.6
Task B	2	1.7
Task C	3	6.1
Task D	1	4.1

1. Calculate the average CPI [3]
2. Suppose it has a clock rate of 1.8MHz, then what is the CPU time. [3]
3. If the program runs on a reference PC with an execution time of 120 nanoseconds, calculate the SPECRatio and Performance. [2]