CS 3853 Computer Architecture Quiz 2a Spring 2013

This is a closed book exam. You may not use a computer, but you may use a calculator.
Answer all question on this sheet in the space required.
Each problem is worth 3 points:
   1 point for turning in the paper
   2 points for showing some reasonable work
   3 points for showing work and putting a box around the correct answer

1) A new ALU design speeds up integer operations by 80%. If integer operations took 20% of the time on the old machine, what is the overall speedup?

2) A new ALU design speeds up integer operations by 80%. If integer operations now take 40% of the time on the new machine, what is the overall speedup?

3) Suppose that all machine-level instructions take 5 cycles to execute except for loads which take 9 cycles. When task A is run, 30% of the instructions executed are loads. What is the average CPI for this task?