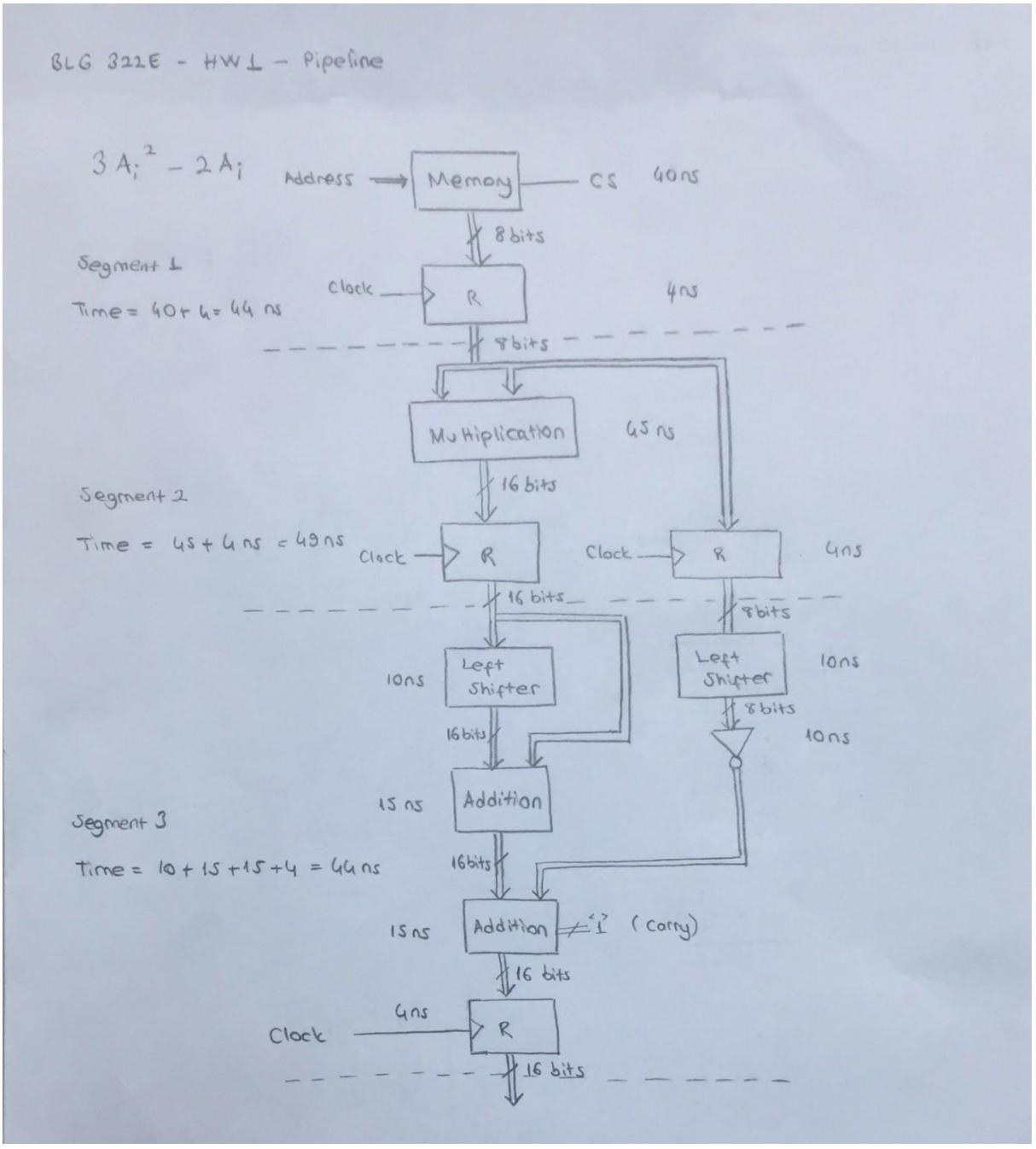

b) the required time for the slowest segment is 49ns. Thus, the clock cycle should be the same, 49ns.

without pipeline: Tn = 40+45+10+15+15 = 125ns. (for one element of array)
For 8 numbers → 125*8=1000ns.

Execution for 8 numbers with pipeline: 3*49 + 7*49 = 490ns.

speedup = 1000/490 = 2.04 (for 8 numbers)
speedup = 125/49 = 2.55 (for infinite numbers)

c) the theoretical speedup = k = 3 (k→ number of segments)