Homework #7

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1. Since the tally function increases count 5 times and the program is running on 8 threads that means the total number of the tally variable is 40. ***Total Increments = 8 threads × 5 increments/thread = 40 increments***
2. The worst-case scenario would involve the maximum overlap of the load and store operations, potentially leading to a situation where all threads load the initial value before any of them has completed the store operation after increment. In that case, the lowest possible value is 1.
3. Using Amdahl’s law:

Alternative A:

Alternative B:

***Alternative A provides a higher bound on the possible speed-up.***