Exercise 8

1. What is the Mean time to failure values of different RAID systems?
   - a. RAID 0 with 2 disks
   - b. RAID 2 with 2 disks
   - c. RAID 1 with 2 disks
   - d. RAID 1 with 3 disks
   - e. RAID 3 with 3 disks
   - f. RAID 4 with 3 disks
   - g. RAID 5 with 3 disks
   - h. RAID 6 with 5 disks
2. Which of the following RAID configurations that we saw in class has the lowest disk space utilization? Your answer needs to have explanations with calculations for each case.
   - (1) RAID 0 with 2 disks
   - (2) RAID 1 with 2 disks
   - (3) RAID 3 with 3 disks

   Where does this lack of utilization of space go, i.e., where we can use such a configuration as it has some benefits gained due to the loss of space utilization?
3. Aries Example: After a crash, we find the following log. What will be the analysis, redo, and undo phases?

   10 T1: UPDATE P1 (OLD: YYY NEW: ZZZ)
   15 T2: UPDATE P3 (OLD: UUU NEW: VVV)
   20 BEGIN CHECKPOINT
   25 END CHECKPOINT (XACT TABLE=[[T1,10],[T2,15]]; DPT=[[P1,10],[P3,15]])
   30 T1: UPDATE P2 (OLD: WWW NEW: XXX)
   35 T1: COMMIT
   40 T2: UPDATE P1 (OLD: ZZZ NEW: TTT)
   45 T2: ABORT
   50 T2: CLR P1(ZZZ), undonextLSN=15