Quiz 2 – Solution

1. [3 points]

RAID 0

Disk 0	Disk 1	Disk 2	Disk 3
0	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15

RAID 1

Disk 0	Disk 1	Disk2	Disk3
0	0	4	4
1	1	5	5
2	2	6	6
3	3	7	7

2. [2 points]

   4 * 100MB/s = 400MB/s

3. [2 points]

   4 * 100MB/s * 1/2 = 200MB/s

4. [3 points]

   In RAID-1, disks are **mirrored** and sequential requests of blocks may be interleaved among disks and their mirrors. For example, reading of block 0 goes to disk 0, block 1 goes to disk 1, block 2 goes to disk 0, etc. But while this makes parallel reads of blocks possible (e.g., reading blocks 0 and 1), each disk only serves the request for every other block. In other words, half of its bandwidth is wasted in rotating the blocks that they are not serving. Such a **skipping** problem does not exist in RAID-0.