

**1.**

$(6000 \text{ rotations}) / (1 \text{ min}) * (1 \text{ min}) / (60 \text{ sec}) = 100 \text{ rotations per second}$

For 8 surfaces:

$(8 \text{ tracks}) / (1 \text{ cylinder}) * (10240 \text{ sectors}) / (1 \text{ track}) * (512 \text{ bytes}) / (1 \text{ sector}) = 41943040$   
bytes per cylinder.

$30 \text{ (rotation/readtime)} + 2 \text{ (seektime)} = 32 \text{ ms.}$

Although the system can read 120 MB of data in 32 ms, the max transfer rate is 100 MB/sec.

**2.**

$(10240 \text{ sectors} / 1 \text{ track}) * (1 / 10 \text{ ms}) = 1024 \text{ sectors in } 1 \text{ ms}$

**3.**

$40 \text{ MB / cylinder} * 100 \text{ rotations/sec} * 1 \text{ cyl/rotation} = 4000 \text{ MB/sec}$

There is still the limitation of the 100 MB/sec data transfer.

**4.**

Raid 5 can have a drive fail and still have read and write access. It also has a very high performance and reliability.

**5.**

RAID 1 uses duplication. This means that if 1 disk is infected and encrypted, then all of them will be. Thus, using RAID 1 does not offer any extra protection.