

I/O and File Systems Examples

1. A hard disk spins with 6000 rpm (revolutions per minute), there are 100 tracks and traversing one track takes $10\ \mu s$. Assume the head is above track 0. What is the average access time (= rotational delay + seek time) for accessing a sector?
2. A UNIX file system has 1-KB blocks and 4-byte disk addresses (to specify a block on the disk). What is the maximum file size if i-nodes contain 10 direct entries, and one single, double, and triple indirect entry each. (The blocksize of the data blocks referenced by the i-node is the same as the file system blocksize.) You can round the answer to the nearest GB.