CST 334: Operating Systems

Dr. Glenn Bruns

# Reading: Hard drives

**Instructions**. Read OSTEP chapter 37 and answer the following questions by editing [hard-drives.txt](https://drive.google.com/file/d/1kucl1l6noNd-xksmZnsNqD_G2dMJXv24/view?usp=sharing)

1. The OS controls an I/O device by
   1. sending a message to the device’s port
   2. using CPU instructions specific to that device
   3. writing to registers in the device’s controller.
2. A disk drive has a speed of 12000 RPM, an average seek time of 5 ms, and a transfer rate of 140 MB/sec. How much time does it take to perform 50 random reads of 10 KB? (In other words, the 50 reads are from random spots on the drive, but each individual read is performed sequentially.) Give your answer in units of seconds.
3. Given the same information as in b) above, what is the I/O rate for the 50 reads? Give your answer in MB/sec.

**Submitting**: Submit your edits hard-drives.txt file on iLearn.

**Grading:** Each question is worth 3 points.