# Exercises 8

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## 8.2

A track holds $144 * 0.5 = 72$ Kb. So the file requires $360/72 = 5$ tracks. The disk turns at 3600 rpm. Track rotation time is $1/3600 * 60 * 1000 = \frac{50}{3}$ ms. Latency time is $\frac{50}{3}/2 = \frac{25}{3}$ ms. Seek time is

$$80 + \frac{25}{3} + 4 * \frac{50}{3} + 4 * (20 + \frac{25}{3} + 4 * \frac{50}{3}) = 535ms$$

## 8.3

read one entire track : $80 + \frac{25}{3} + 4 * \frac{50}{3} = 155$ms.
read one sector : $80 + 0.5 * \frac{50}{3} + 1/144 * \frac{50}{3} = 88.45$ms. read one byte : $1/144 * \frac{50}{3} = 0.12$ms.

## 8.11

A track holds $1170 * 0.5 = 585$ Kb. So the file requires $6 * 1024/585 = 10.5$ tracks. The disk turns at 3600 rpm. Track rotation time is $1/15000 * 60 * 1000 = 4$ ms. Latency time is $4/2 = 2$ ms. Seek time is

$$3.6 + 4 * 0.5 + 4 * 1 + 9.5 * (0.4 + 4 * 0.5 + 4 * 1) = 70.4ms$$

## 8.16

**(a)** 10 4 6 8 5

**(b)** 5 3 4 6 8

**(c)** 5 3 9 2 8

**(d)** 5 8 6 4 10

**(e)** 12 15 2 4 5