Homework 7

Monday, November 29, 2021 10:06 AM

1) $30{,}000 \text{ tracks} / (100 \text{ tracks/ms}) = 300\text{ms}$ (long case) + 0ms (short case) $/ 2 = 150\text{ms}$

150ms average seek time

2) 7200 rpm $\quad 60/7200 = 8.3\text{ms/revolution}$

$8.3/2 = 4.15\text{ms}$ rotational delay

3) $8.3\text{ms} / 600 \text{ sectors} = 0.01388\text{ms}$ transfer time

4) $r = 7200\text{r/m} / 60\text{s} = 120\text{r/s}$

5) $T_a = T_s + \frac{1}{2r} + \text{transfer time}$

$T_a = 150\text{ms} + \frac{1}{2 \cdot 120\text{r/s}} + 0.01388\text{ms}$

$T_a = 150\text{ms} + 4.17\text{ms} + 0.0138\text{ms}$

$T_a = 154.18388\text{ms}$