

1) Access Time = (Seek time) + (rotational delay) + (Transfer time) = 15.02ms

Seek time = 10ms

Rotational Delay = $1 / (6000 \text{ RPM} / 60 \text{ s}) * (1/2) = 5\text{ms}$

Transfer Time = $(10\text{ms} / \text{rotation}) * (1 \text{ track} / 500 \text{ sectors}) = .02 \text{ ms}$

2)

Bytes per tuple = $2+4+4+4+4+4+30+20 = 72 \text{ Bytes}$

Tuples per sector = $1024/72 = 14 \text{ tuples}$

Total disk blocks = $1000 \text{ tuples} / 14 \text{ tuples per sector} = 72 \text{ disk blocks}$

3) Access time = seek time + rotational delay + transfer time*all blocks = $10 + 5 + (72*.02) = 16.44\text{ms}$

4) Access time = seek time + rotational delay + transfer time = $(24*10) + (24*5) + (72*.02) = 361.44\text{ms}$

5) Access time = seek time + rotational delay + transfer time = $10 + 5 + (.02*1) = 15.02\text{ms}$. This would be useful because then you wouldn't have to search every block sequentially to look for years.