

# CSCI 485 assignment 9

Ethan Seiber

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1

$$\frac{2 * 2^{40}}{2 * 2^{10}} = 2^{30} \text{ blocks}$$

$$\frac{2 * 2^{10}}{2^2} = 2^9 \text{ entries in one block}$$

$$\frac{2^{30}}{2^9} = 2^{21} \text{ blocks in total}$$

$$\frac{2^{21} * 2^{11}}{2^{41}} * 100 = \frac{1}{2^{19}} * 100 = 0.1953125\%$$

2

$$\frac{2^{41}}{2^2 * 2^{10}} = 2^{29}$$

$$\frac{2^{29}}{2^3 * 2^{10} * 2^2} = 2^{14}$$

$$\frac{2^{14} * 2^2 * 2^{10}}{2^{41}} * 100 = 0.0031\%$$

3

$$\frac{60 \text{ sec}}{60,000 \text{ rpm}} = 1 \text{ msec}$$

$$\frac{1 \text{ msec}}{500 \text{ sectors per track}} = 2 \mu\text{secs}$$

$$\frac{100 \mu\text{secs}}{2} = 50 \text{ sectors}$$