

Homework #6

1.

Instruction Memory	2% miss rate
Data Memory	5% miss rate
CPI	2
Miss Penalty	100 cycles (IM) & 200 cycles (DM)
Frequency of Data Memory Access	30%

$$\text{RATIO} = \frac{\text{performance of processor}}{\text{perfect cache performance}} = \frac{\text{total penalty} + \text{perfect cache performance}}{\text{perfect cache performance}}$$

Assume x instructions are run.

$$\text{RATIO} = \frac{(0.02 * x)100 + (0.05 * 0.30 * x)200 + 2x}{2x} = \frac{7x}{2x} = 3.5$$

2. Attached in email