Important Equations

Comparing performance between two systems

$$\frac{Performance_X}{Performance_Y} = \frac{Execution\ time_Y}{Exection\ time_X} = n$$

Amdahl's Law

$$Speedup_O = \frac{1}{(1-F) + \frac{F}{Speedup_E}}$$

F = fraction enhancement is used
$Speedup_O$ = overall speedup
$Speedup_E$ = speedup of enhancement

Calculating CPU clock cycles

$$CPU\ clock\ cycles = \#\ instructions \times CPI$$

$$CPU\ clock\ cycles = CPU_{Time} \times Clock\ rate$$

Different ways to calculate CPU time

$$CPU_{Time} = CPU\ clock\ cycles \times Clock\ cycle\ time$$

$$CPU_{Time} = \frac{CPU\ clock\ cycles}{Clock\ rate}$$

$$CPU_{Time} = Instruction\ count \times CPI \times Clock\ cycle\ time$$

$$CPU_{Time} = \frac{Instruction\ count \times CPI}{Clock\ rate}$$