Ch3

1. (1) $T_{pipe} = 2ns + 0.1ns = 2.1ns$

(2) $S = \frac{T_{pipe}}{T_{cycle}} \cdot \frac{CPI_{pipe}}{CPI_{cycle}} = \frac{2.1ns}{7ns} \cdot \frac{N+4}{N}$

$= 0.3\left(1 + \frac{4}{N}\right)$

$N \to \infty$ 时, $S \to 0.3$

(3) $K \to \infty$ 时, $T_{pipe} \to 0.1ns$

$S = \frac{0.1ns}{7ns} \cdot \frac{N+K-1}{N} = \frac{1}{70}\left(1 + \frac{K-1}{N}\right)$

$N \to \infty$ 时, 由于 K, N 为线性趋于 ∞

$\therefore S = \frac{1}{35}$