

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

$$(2) S = \frac{T_{\text{pipe}}}{T_{\text{cycle}}} \cdot \frac{\text{CPI pipe}}{\text{CPI cycle}} = \frac{2.1ns}{7ns} \cdot \frac{N+K-1}{N}$$

$$= \frac{3}{10} \frac{N+4}{N}$$

$$(3) \text{ 当 } k \rightarrow \infty \text{ 时, } S \rightarrow \infty$$