

$$1. (1) T_{\text{pipe}} = 2ns + 0 \cdot \ln S = 2 \cdot 1ns$$

$$(2) S = \frac{T_{\text{pipe}}}{T_{\text{cycle}}} \cdot \frac{\text{CPI}_{\text{pipe}}}{\text{CPI}_{\text{cycle}}} = \frac{2 \cdot 1ns}{7ns} \cdot \frac{N+K-1}{N}$$
$$= \frac{3}{10} \cdot \frac{N+4}{N}$$

(3) 当 $K \rightarrow \infty$ 时, $S \rightarrow \infty$