

3.1

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

(2)  $S = \frac{T_{\text{pipe}}}{T_{\text{cycle}}} \cdot \frac{\text{CPI}_{\text{pipe}}}{\text{CPI}_{\text{cycle}}} \approx \frac{T_{\text{pipe}}}{T_{\text{cycle}}} = \frac{2.1}{7} = 0.3$

(3) 无限多流水级，每个阶段所需时间几乎为零，故  $T'_{\text{pipe}} = 0.1 \text{ns}$

$S' = \frac{T'_{\text{pipe}}}{T_{\text{cycle}}} = \frac{0.1}{7} = 0.014$



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