

3.1

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

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

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

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

