

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

$$2) S = \frac{T_{\text{pipe}}}{T_{\text{cycle}}} \times \frac{\text{CPI}_{\text{pipe}}}{\text{CPI}_{\text{cycle}}} \approx \frac{2.1}{7} \times 1 = 0.3$$

$$\therefore \frac{1}{S} = \frac{10}{3}$$

$$3) T_{\text{pipe}} \rightarrow 0.1 \text{ ns}$$

$$\therefore S \rightarrow \frac{0.1}{7} = \frac{1}{70}$$

$$\therefore \frac{1}{S} \rightarrow 70$$