PS 4 A

- MIN

> 40 MIN

< 00

≤ 30 MIN

< 30 MIN ?.

TOTAL EXPECTATION

$$E[T] = E[T \mid \text{LATE}]\,\mathbb{P}(\text{LATE}) + E[T \mid \text{EARLY}]\,\mathbb{P}(\text{EARLY})$$

$\mathbb{P}(\text{LATE}) = e^{-30\cdot\lambda} = e^{-\frac{30}{30}} = e^{-1} \approx 0.37$

$\mathbb{P}(\text{EARLY}) = (1 - e^{(-30\cdot\lambda)})$

$E[T \mid \text{LATE}]$: 30 MIN

$E[T \mid \text{EARLY}]$: 0 MIN

$$E[T] = 30\,\text{MIN} \cdot 0.37 \approx 11\,\text{MIN}$$

PS4 B