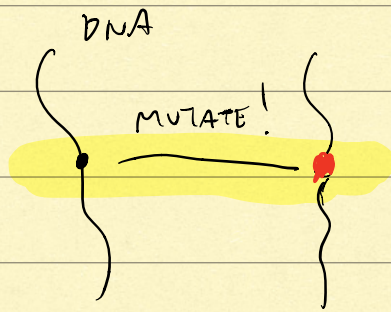


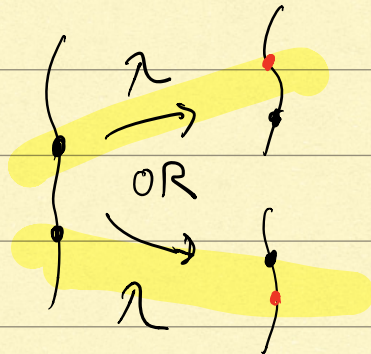
CASE I



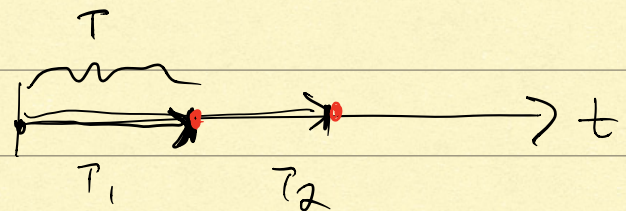
RATE λ (yr^{-1})

$$E[T] = \frac{1}{\lambda}$$

CASE II

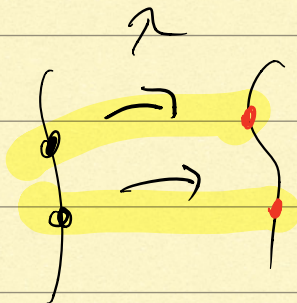


TIME UNTIL FIRST
MUTATION?

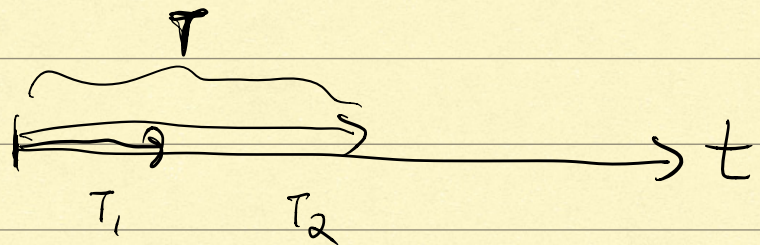


$$E[T] = \frac{1}{\lambda + \lambda} = \frac{1}{2\lambda}$$

CASE III



HOW LONG UNTIL BOTH
EVENTS?



$$E[T] = ?$$

RESPONSES: $E[T] = \frac{1}{\lambda}$

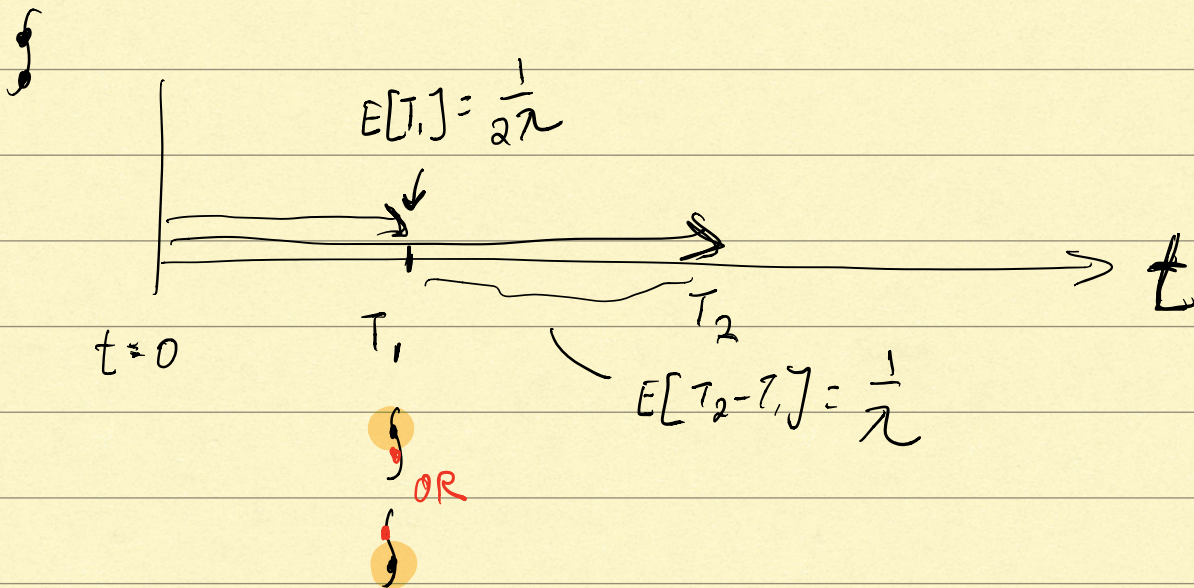
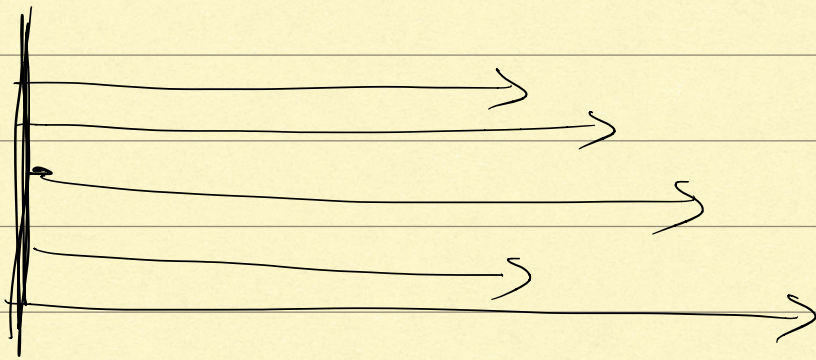
0%

$$E[T] = 2 \cdot \frac{1}{\lambda} \quad 31\%$$

$$E[T] = 1.5 \frac{1}{\lambda} \quad 0\%$$

$$E[T] = \frac{1}{\lambda^2} \quad 69\%$$

UNITS OF $\frac{1}{\text{TIME}}$



$$E[T] = \left(1 + \frac{1}{2}\right) \frac{1}{\lambda} = 1.5 \frac{1}{\lambda}$$

PS4 A

> ZERO ?

$$E[\tau] = \frac{1}{\lambda}$$

$$= 30 \text{ min}$$

$$\lambda = \frac{1}{30 \text{ min}}$$

?

CASE I $T_1 > 30 \text{ min}$

CASE II $T_1 \leq 30 \text{ min}$

... LAW OF TOTAL PROBABILITY

... $T \sim 8 \text{ min}$?

CASE I $K \geq 1$

K : # OF MEETINGS

ENDING
~~AS~~ IN

FIRST 30 min

CASE II $K = 0$