W5 a  P(at least one boy)

$P(\text{one girl} \mid \text{at least one boy})$ ? $P_1$

$$P_1 = \frac{P(\text{one girl} + \text{at least one boy})}{P(\text{at least one boy})}$$

$= 0.5$

$0.75$

| $C_2$ \ $C_1$ | B | G |
|---|---|---|
| B | 0.25 | 0.25 |
| G | 0.25 | 0.25 |

$P_1 = \frac{2}{3}$   (a)

$C_1 = B$ or $C_2 = B$

$C_2 = G$ ?   $C_1 = G$ ?

$= \frac{1}{2}$ ← (b)

$$P(k) = \frac{\lambda^k \cdot \exp(-\lambda)}{k!} \qquad \sum_{k=0}^{\infty} P(k) = 1$$

$$\mu = \sum_{k=0}^{\infty} k \cdot P(k) = \sum_{k=0}^{\infty} k \cdot \frac{\lambda^k \cdot \exp(-\lambda)}{k!}$$

$$= \underbrace{0}_{k=0} + \underbrace{\frac{\lambda \cdot \exp(-\lambda)}{1!}}_{k=1} + \dots$$

$$= \sum_{k=1}^{\infty} k \cdot \frac{\lambda^k \cdot \exp(-\lambda)}{k!}$$

$$= \sum_{k=1}^{\infty} \frac{\lambda^k \cdot \exp(-\lambda)}{(k-1)!}$$

$$m = k - 1 \rightarrow k = m + 1$$

$$\boxed{\mu = \lambda} = \lambda \underbrace{\sum_{m=0}^{\infty} \frac{\lambda^m \cdot \exp(-\lambda)}{m!}}_{=1}$$