

1)

$X \backslash Y$	-1	0	1
-1	$\frac{1}{2}$	0	$\frac{1}{4}$
1	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

2)

$X \backslash Y$	-1	0	1
P	$\frac{4}{12}$	$\frac{1}{12}$	$\frac{4}{12}$
Y	-1	1	
P	$\frac{3}{4}$	$\frac{1}{4}$	

3) $P(Y=1 | X=1) = \frac{P((Y=1) \cap (X=1))}{P(X=1)}$

$$= \frac{\frac{1}{12}}{\frac{4}{12}} = \frac{1}{4}$$

4) $\frac{4}{12} \cdot \frac{3}{4} = \frac{21}{96} = \frac{7}{32} \neq \frac{1}{2} \Rightarrow X$ та Y - незалежні

5) $M \frac{1}{1+e} = \sum_{k=0}^{\infty} \frac{1}{1+k} \frac{\lambda^k}{k!} e^{-\lambda} = \frac{e^{-\lambda}}{\lambda} \sum_{k=0}^{\infty} \frac{\lambda^{k+1}}{(k+1)!} = \frac{e^{-\lambda}}{\lambda} \sum_{k=1}^{\infty} \frac{\lambda^k}{k!} =$
 $= \frac{e^{-\lambda}}{\lambda} (e^{\lambda} - 1) = \frac{1}{\lambda} - \frac{e^{-\lambda}}{\lambda}$