

1. (1)  $t=0$   
 $X(t)=0$   
 $F_0(x)=0$   
 $t=-1$   
 $X(t)=-\frac{1}{2}$

$X(t)$	0	1
P	$1-P$	P

$$F_1(x) = \begin{cases} 0, & x < -1 \\ P, & -1 \leq x < 0 \\ 1, & 0 \leq x \end{cases}$$

$t=1$   
 $X(t)=\frac{1}{2}$

$X(t)$	0	1
P	$1-P$	P

$$F_1(x) = \begin{cases} 0, & x < 0 \\ 1-P, & 0 \leq x < 1 \\ 1, & 1 \leq x \end{cases}$$

12)  $X_1(t)$

	0	1
0	$1-P$	0
1	0	P

$$F(x_1, x_2, t) = \begin{cases} 0, & (x_1 < 0) \text{ 或 } (x_2 < 0) \\ 1-P, & (x_1 \geq 0, 0 \leq x_2 < 1) \\ 1, & (x_1 \geq 0, x_2 \geq 1) \end{cases}$$

$$F_{-1,1}(x_1, x_2) =$$

$$\begin{cases} 0, & (x_1 < -1) \text{ 或 } (x_2 < 0) \\ 1-P, & (-1 \leq x_1 < 0, 0 \leq x_2 < 1) \\ P, & (-1 \leq x_1 < 0, x_2 \geq 1) \\ 1, & (x_1 \geq 0, x_2 \geq 1) \end{cases}$$

9.  $m(t) = \frac{1}{4}(1 - 1 + \sin t + \cos t)$   
 $= \frac{1}{4}(\sin t + \cos t)$

$$R_X(t_1, t_2) = E(X(t_1)X(t_2))$$

$$= \frac{1}{4} \times 1 \times 1 + \frac{1}{4} \times (-1) \times (-1) + \frac{1}{4} \times \sin t_1 \sin t_2 + \frac{1}{4} \times \cos t_1 \cos t_2$$

$$= \frac{1}{2} + \frac{1}{4}(\sin t_1 \sin t_2 + \cos t_1 \cos t_2)$$

(11)  $f(A) = \begin{cases} \lambda e^{-\lambda A}, & A > 0 \\ 0, & \text{其他} \end{cases}$

$$F_X(x) = P\{X \leq x\} = P\{e^{-At} \leq x\} = P\{A \geq -\frac{\ln x}{t}\}$$

$$= 1 - P\{A \leq \frac{\ln x}{-t}\} = 1 - F(\frac{\ln x}{-t})$$

$$= -f(\frac{\ln x}{-t}) \times (-\frac{1}{t}) \frac{1}{x}$$

$$= -\lambda e^{-\lambda \frac{\ln x}{-t}} \times (-\frac{1}{t}) \frac{1}{x}$$

$$= \frac{\lambda}{t} x^{\frac{\lambda}{t}-1} \quad (0 < x < 1)$$

$$R_1 f_t(x) = \begin{cases} \frac{\lambda}{t} x^{\frac{\lambda}{t}-1} & (0 < x < 1) \\ 0 & \text{other} \end{cases}$$

