7.

1. $X, Y \sim U(0,1)$ $\quad f_{X,Y} = f_X(x) f_Y(y) = \begin{cases} 1, & 0 \le x, y \le 1 \\ 0, & \text{其它} \end{cases}$

当 $0 \le z < 1$ 时, $f_Z(z) = \int_0^z dx = z$.

当 $1 \le z < 2$ 时, $f_Z(z) = \int_{z-1}^1 dx = 2 - z$

$\therefore f_Z(z) = \begin{cases} z, & 0 \le z < 1 \\ 2-z, & 1 \le z < 2 \\ 0, & \text{其它} \end{cases}$

2. $X, Y \sim Exp(1)$

$f_X(x) = e^{-x}, \quad x > 0$

当 $z > 0$.

$f_Z(z) = \int_0^z e^{-x} \cdot e^{-z+x} dx = z e^{-z}$

$\therefore f_Z(z) = \begin{cases} z e^{-z}, & z > 0 \\ 0, & \text{其它} \end{cases}$