

$$X(p) = \frac{(p+2)(p-1)}{p^2(p-2)} = \frac{a}{p} + \frac{b}{p^2} + \frac{c}{p-2}$$

$$p^2 + p - 2 = (p^2 - 2p)a + (p-2)b + p^2c$$

$$= (a+c)p^2 + (-2a+b)p - 2b$$

$$\left\{ \begin{array}{l} b = 1 \\ a + c = 1 \\ -2a + b = 1 \end{array} \right. \quad a = 0, b = 1, c = 1$$

$$\therefore X(p) = \frac{1}{p^2} + \frac{1}{p-2}$$

$$f(t) = \frac{1}{2\pi i} \int \left(\frac{1}{p^2} + \frac{1}{p-2} \right) dp$$

$$= \boxed{t + e^{2t}}$$