Expand the function $f(z) = \dfrac{z^2 - 2z + 2}{z - 2}$ in a Laurent series which converges in the given annular domain $1 < |z - 1|$. [104 清大核工工科 8]

[解] $f(z) = \dfrac{(z-1)(z-2) + (z-2) + 2}{(z-1) - 1} = (z-1) + 1 + \dfrac{2}{(z-1) - 1} = (z-1) + 1 + \dfrac{\dfrac{2}{z-1}}{1 - \dfrac{1}{z-1}}$

$= (z-1) + 1 + \dfrac{2}{z-1}[1 + \dfrac{1}{z-1} + (\dfrac{1}{z-1})^2 + (\dfrac{1}{z-1})^3 + \cdots]$