우림 13-4

2019년 8월 14일 수요일 오후 5:57

$g(-y-1) =$

$((1+x)^{-(y+1)(1988)})^{(0)}$

$= (y+1)(y+2)\cdots(y+1988)(1+x)^{-(y+1989)}{}^{(0)}$

$= (y+1)(y+2)\cdots(y+1988)$

$g(-y-1)\sum_{i=1}^{1988}\frac{1}{y+i} = (y+2)\cdots(y+1988) + (y+1)(y+3)\cdots(y+1988)$

$+ \cdots + (y+1)\cdots(y+1987)$

By the product Rule, it's equal to $\frac{d}{dy}((y+1)\cdots(y+1988))$

$\therefore \int_0^1 g(-y-1)\sum_{i=1}^{1988}\left(\frac{1}{y+i}\right)dy = 1989! - 1988!$