$$\int_3^8 \frac{1}{x-3} \, dx = \lim_{t \to 3^+} \int_t^8 \frac{1}{x-3} \, dx$$

Indef $\quad \int \frac{1}{x-3} \, dx = \ln|x-3| + C$

$$= \lim_{t \to 3^+} \left(\ln|8-3| - \ln|t-3| \right)$$

$\uparrow$ small positive

$\searrow$ to $-\infty$

$$= \ln(5) - (-\infty)$$

$$= +\infty$$