

$$\int_3^8 \frac{1}{8-x} dx = \lim_{t \rightarrow 8^-} \int_3^t \frac{1}{8-x} dx$$

Indef  $\int \frac{1}{8-x} dx$        $u = 8-x$      $du = -dx$   
 $\downarrow$   $y = -\int \frac{1}{u} du = -\ln|8-x| + C$

$$= \lim_{t \rightarrow 8^-} \left( \underbrace{-\ln|8-t|}_{\text{small pos.}} - (-\ln|8-3|) \right)$$

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

$$= +\infty$$