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

Indef $\int \frac{1}{\sqrt{8-x}}\,dx$ $\quad u = 8-x \quad du = -dx$

$$= -\int u^{-1/2}\,du = -\frac{u^{1/2}}{1/2} + C = -2\sqrt{u} + C = -2\sqrt{8-x} + C$$

$$= \lim_{t\to 8^-}\left(-2\sqrt{8-t} - -2\sqrt{8-3}\right)$$

$$= -2\sqrt{0} + 2\sqrt{5}$$

$$= 2\sqrt{5}$$