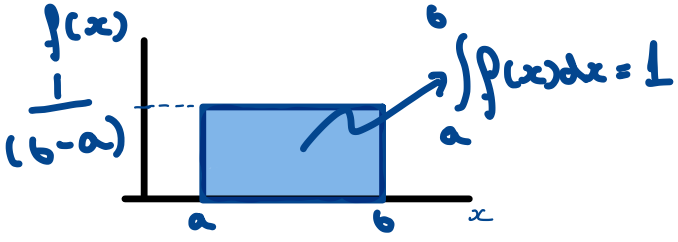
$$f(x) = \begin{cases} 1/(b-a), & x \in [a, b] \\ 0, & \text{otherwise} \end{cases}$$



$$F(x) = \int_a^x \frac{1}{(b-a)}\,dt = \frac{1}{(b-a)}\,t\Big]_a^x = \frac{x-a}{(b-a)}$$

Setting $y = \frac{x-a}{(b-a)}$, we obtain the inverse by writing x in terms of y.

$$\boxed{x = a + (b-a)y}$$