

Because the region of integration is

$$D = \{(x, y) \mid 0 \leq y \leq \sqrt{x}, 0 \leq x \leq 25\} = \{(x, y) \mid y^2 \leq x \leq 25, 0 \leq y \leq 5\}$$

we have $\int_0^{25} \int_0^{\sqrt{x}} f(x, y) dy dx = \iint_D f(x, y) dA = \int_0^5 \int_{y^2}^{25} f(x, y) dx dy$.

