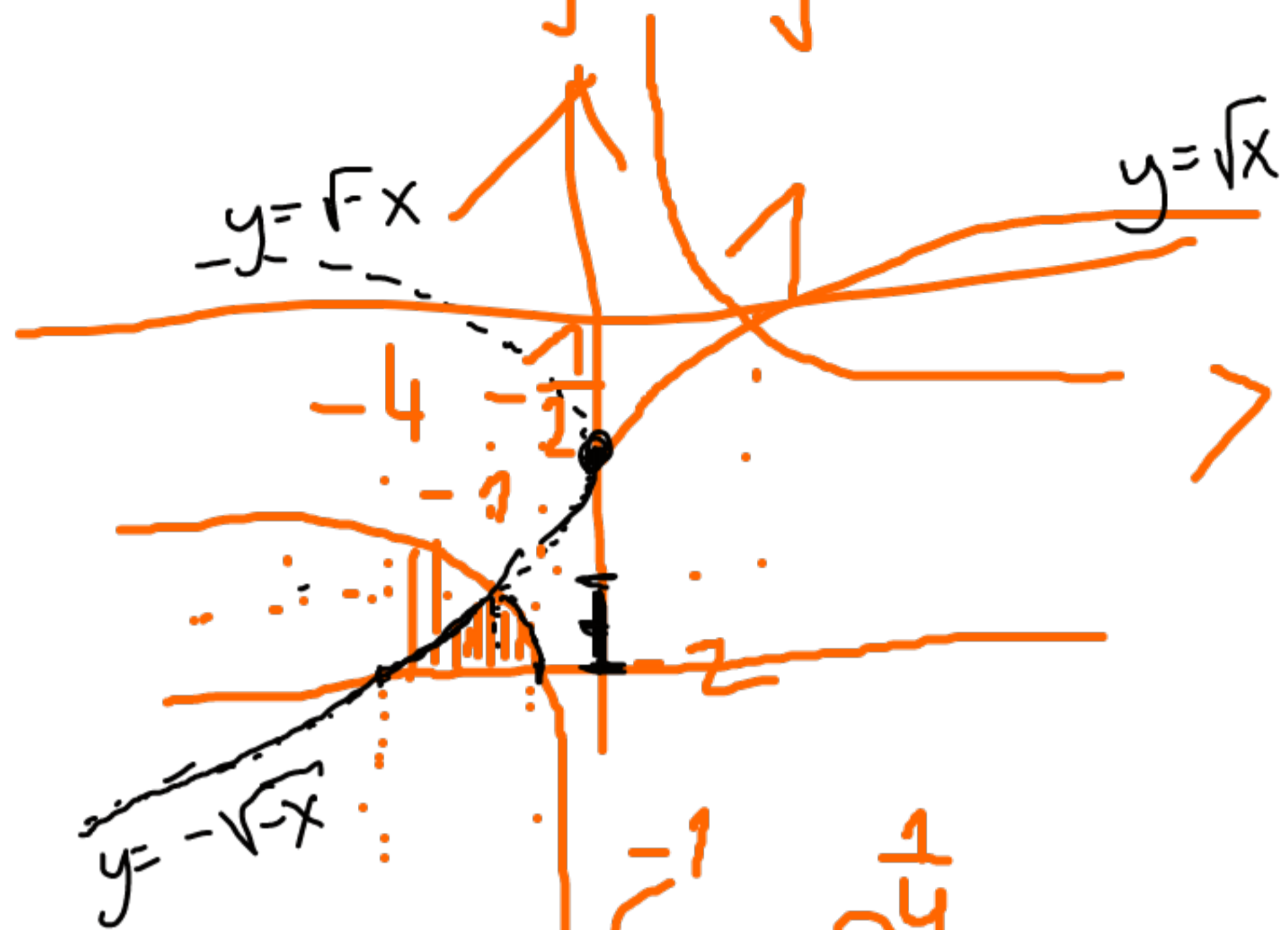


$$\iint_D x^2 y \, dx \, dy$$



$$D: y = -2 \quad y = \frac{1}{x} \quad y = -\sqrt{x}$$

$$\rightarrow x = -\frac{1}{2}, y = -2$$

$$= \sqrt{x}$$

$$-y = \sqrt{x}$$

$$-y^2 = x$$

$$-\sqrt{x} = \frac{1}{x}$$

$$-x = \frac{1}{x^2} \Rightarrow -x^3 = 1 \Rightarrow x = -1$$

$$y = -1$$

$$\int_{-1}^1 x^2 y \, dx = \dots$$

$$y \int_{-y^2}^{y^2} x^2 \, dx = y \left[ \frac{x^3}{3} \right]_{-y^2}^{y^2}$$

$$= y \left( \frac{1}{3} y^6 - \frac{(-y^2)^3}{3} \right) = \frac{1}{3} y^7 + \frac{y^7}{3}$$

$$\int_{-2}^{-1} \left( \frac{1}{y^2 \cdot 3} + \frac{y^7}{3} \right) dy = \frac{1}{3} \left[ -y^{-1} + \frac{y^8}{8} \right]_{-2}^{-1} = \frac{1}{3} \left[ (-1)^{-1} + \frac{(-1)^8}{8} - \left( (-2)^{-1} + \frac{(-2)^8}{8} \right) \right]$$

$$= \frac{1}{3} \left[ -1 + \frac{1}{8} - \left( -\frac{1}{2} + \frac{256}{8} \right) \right]$$