

$$\frac{dy}{dt} = \frac{1}{t+4} \quad y(-3) = 2$$

$$\int \frac{dy}{dt} dt = \int \frac{1}{t+4} dt$$

$$y = \ln |t+4| + C$$

$$2 = \ln |-3+4| + C$$

$$2 = C$$

$$y = \ln |t+4| + 2$$

$$\frac{dy}{dx} = (2x+1)(y+1) \quad y(-1) = 1$$

$$\int \frac{1}{y+1} \frac{dy}{dx} dx = \int (2x+1) dx$$

$$\int \frac{1}{y+1} dy = \int (2x+1) dx$$

$$\ln |y+1| = x^2 + x + C$$

$$|y+1| = e^{x^2+x+C}$$

$$2 = e^C \quad \text{Finding } C$$

writing

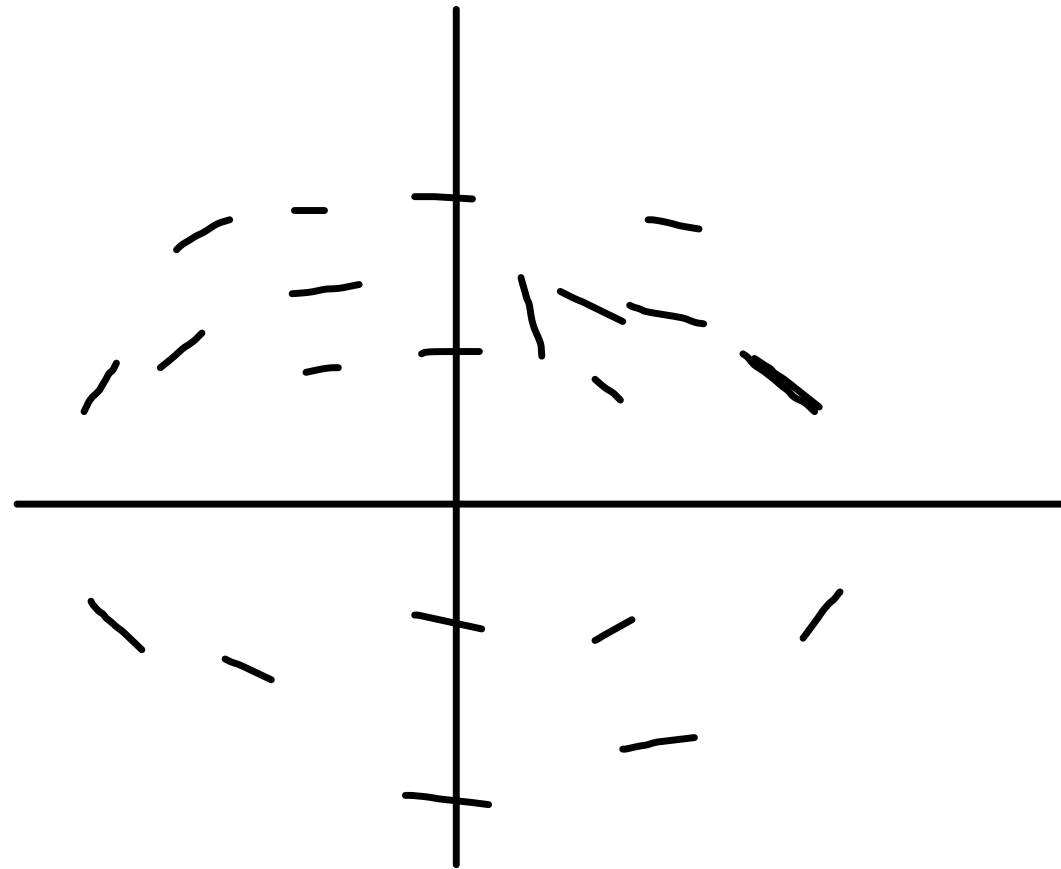
$y \rightarrow$

$$y = e^C e^{x^2+x} - 1$$

$$y = e^{\ln 2} e^{x^2+x} - 1$$

$$y = 2e^{x^2+x} - 1$$

$$\frac{dy}{dx} = -\frac{x}{2y}$$



$$\int (1 - \cos \frac{t}{2})^2 \sin \frac{t}{2} dt \quad u = 1 - \cos \frac{t}{2}$$
$$du = \sin \frac{t}{2} dt$$

$$\int u^2 du$$

$$\frac{u^3}{3} + C$$
$$\frac{(1 - \cos \frac{t}{2})^3}{3} + C$$