Формулы

$$\frac{dy}{dx} = f(x, y)$$
$$y(x_0) = y_0$$

$$k_1 = f(x_n, y_n)$$
$$k_2 = f(x_n + \frac{h}{2}, y_n + \frac{h}{2}k_1)$$
$$k_3 = f(x_n + \frac{h}{2}, y_n + \frac{h}{2}k_2)$$
$$k_4 = f(x_n + h, y_n + hk_3)$$
$$y_{n+1} = y_n + \frac{h}{6}(k_1 + 2k_2 + 2k_3 + k_4)$$
$$\frac{dy}{dx} = -1000y + 3000 - 2000e^{-x}$$
$$y = 3 - 0.998e^{-1000x} - 2.002e^{-x}$$
$$\frac{dy}{dx} = xy, y(1) = 1$$
$$y(x) = e^{\frac{x^2-1}{2}}$$
$$\frac{dy}{dx} = -30y, y(0) = \frac{1}{3}$$
$$\frac{1}{3}e^{-30x}$$
$$\frac{dy}{dx} = -ay, a > 0$$

$y_{n+1} = y_n + (-ay_{n+1}) \cdot h$
$y_{n+1} = \frac{y_n}{1+ah}$

$$y_n \to 0 \longrightarrow$$