

• معادلات دیفرانسیل زیر را حل کنید:

$$۱) y' = \frac{-1}{x^2} - \frac{y}{x} + y^2 \quad y_1(x) = \frac{1}{x}$$

$$۲) y' = x^2 + \frac{1}{x}y - \frac{1}{x}y^2 \quad y_1(x) = -x^2$$

$$۳) \frac{dy}{dx} = \sin x + y \cos x + y^2 \quad y_1(x) = -\cos x$$

$$۴) \frac{dy}{dx} = \frac{-2+2xy}{x^2} - y^2 \quad y_1(x) = \frac{1}{x}$$

$$۵) \frac{dy}{dx} = x^2 - y^2 + \frac{y}{x} \quad y_1(x) = x$$

$$۶) y' = (x-1)y^2 - 2y + \frac{1}{x}$$

$$۷) \frac{dy}{dx} = -\frac{2}{\sqrt{x^2}} + \frac{1}{\sqrt{x}} - x^2y + \frac{x}{\sqrt{x}}(x^2-1)y^2 \quad y_1(x) = \frac{1}{x^2}$$

$$۸) y' = x(\ln x)^2 - 2x \ln x + \frac{1}{x} + 2x(1-\ln x)y + xy^2 \quad y_1(x) = \ln x$$

$$۹) y = xy' + \frac{1}{1+y'}$$

$$۱۰) y = xy' - 4(y')^2$$

$$۱۱) y' = e^{y-xy'}$$

$$۱۲) y = xy' + \frac{1}{\sqrt{y'}}$$