

(34)

$$\#7 \quad y'' = -y^3 + \sin x, \quad y(0) = 0, y'(0) = 0.$$

$$y^{(2)}(0) = 0$$

$$y^{(3)} = -3y^2 y' + \cos x$$

$$y^{(3)}(0) = 1$$

$$y^{(4)} = -6y(y')^2 - 3y^2 y'' - \sin x \quad y^{(4)}(0) = 0$$

$$y^{(5)} = -6(y')^3 - 12y y' y'' - 6y y' y''' - 3y^2 y^{(4)} - \cos x$$

$$y^{(5)}(0) = -1$$

$$y^{(5)} = -6(y')^3 - 18y y' y'' - 3y^2 y^{(3)} - \cos x$$

$$y^{(6)} = -18(y')^2 y'' - 18(y')^2 y''' + y(y'')^2 + y y' y^{(3)}$$

$$-6y y^{(4)} - 3y^2 y^{(4)} + \sin x \quad y^{(6)}(0) = 0$$

$$y^{(7)}(0) = 1$$

$$y(x) = \frac{x^3}{3!} - \frac{x^5}{5!} + \frac{x^7}{7!} + \dots$$