



Nombre del alumno: Yahir Aguilar Sicalhua

Parcial: 1

Nombre de la materia: Ecuaciones Diferenciales

Nombre del profesor: Jorge Enrique Albores Aguilar

Nombre de la licenciatura: Ingeniería en Sistemas Computacionales

Cuatrimestre: 3

Yahir Aguilar Sicathua

$$\begin{aligned} 1 \quad y' &= 2y^2 & \frac{y^{-1}}{-1} &= 2x+C \\ \frac{dy}{dx} &= 2y^2 & -\frac{1}{y} &= 2x+C \\ \int \frac{dy}{y^2} &= \int 2 dx & -\frac{1}{2x+C} &= y \\ \int y^{-2} dy &= 2x+C \\ \frac{y^{-2+1}}{-2+1} &= 2x+C \end{aligned}$$

$$\begin{aligned} 2 \quad y' &= 8y^4 & -\frac{1}{3y^3} &= 8x+C \\ \frac{dy}{dx} &= 8y^4 & -1 &= (8x+C)3y^3 \\ \frac{dy}{y^4} &= \int 8 dx & -1 &= (24x+C)y^3 \\ y^{-4} dy &= 8x+C & \sqrt[3]{\frac{-1}{24x+C}} &= \sqrt[3]{y^3} \\ \frac{y^{-4+1}}{-4+1} &= 8x+C & \sqrt[3]{\frac{-1}{24x+C}} &= y \\ \frac{y^{-3}}{-3} &= 8x+C \end{aligned}$$

$$\begin{aligned} 3 \quad y' &= 4y^3 & \frac{1}{-2y^2} &= 4x+C \\ \frac{dy}{dx} &= 4y^3 & -1 &= (4x+C)2y^2 \\ \int \frac{dy}{y^3} &= \int 4 dx & -1 &= (8x+C)y^2 \\ \int y^{-3} dy &= 4x+C & \sqrt[2]{\frac{-1}{8x+C}} &= \sqrt[2]{y^2} \\ \frac{y^{-3+1}}{-3+1} &= 4x+C & \sqrt[2]{\frac{-1}{8x+C}} &= y \\ \frac{y^{-2}}{-2} &= 4x+C \end{aligned}$$

$$\begin{aligned} 4 \quad y' &= 4x^3 + 2x^2 + 4x \\ \frac{dy}{dx} &= 4x^3 + 2x^2 + 4x \\ dy &= (4x^3 + 2x^2 + 4x) dx \\ dy &= \int 4x^3 dx + \int 2x^2 dx + \int 4x dx \\ dy &= \frac{4x^4}{4} + \frac{2x^3}{3} + \frac{4x^2}{2} \\ dy &= x^4 + \frac{2x^3}{3} + 2x^2 + C \end{aligned}$$

$$\begin{aligned} 5 \quad y' &= 3y^4 & \frac{1}{-3y^3} &= 3x+C \\ \frac{dy}{dx} &= 3y^4 & -1 &= (3x+C)3y^3 \\ \int \frac{dy}{y^4} &= \int 3 dx & -1 &= (9x+C)y^3 \\ \int y^{-4} dy &= 3x+C & \sqrt[3]{\frac{-1}{9x+C}} &= \sqrt[3]{y^3} \\ \frac{y^{-4+1}}{-4+1} &= 3x+C & \sqrt[3]{\frac{-1}{9x+C}} &= y \\ \frac{y^{-3}}{-3} &= 3x+C \end{aligned}$$

$$\begin{aligned} 6 \quad y' &= 2y^3 & -\frac{1}{2y^2} &= 2x+C \\ \frac{dy}{dx} &= 2y^3 & -1 &= (2x+C)2y^2 \\ \int \frac{dy}{y^3} &= \int 2 dx & -1 &= (4x+C)y^2 \\ \int y^{-3} dx &= 2x+C & \sqrt[2]{\frac{-1}{4x+C}} &= \sqrt[2]{y^2} \\ \frac{y^{-3+1}}{-3+1} &= 2x+C & \sqrt[2]{\frac{-1}{4x+C}} &= y \\ \frac{y^{-2}}{-2} &= 2x+C \end{aligned}$$

Yahir Aguilar Sicalhua

$$⑦ y' = 4y^5$$

$$\frac{dy}{dx} = 4y^5$$

$$\frac{1}{-4y^4} = 4x + C$$

$$\int \frac{dy}{y^5} = \int 4 dx$$

$$-1 = (4x + C)4y^4$$

$$-1 = (16x + C)y^4$$

$$\int y^{-5} dy = 4x + C$$

$$\sqrt[4]{\frac{-1}{16x+C}} = \int y^{-4}$$

$$\frac{y^{-5+1}}{-5+1} = 4x + C$$

$$\sqrt[4]{\frac{-1}{16x+C}} = y$$

$$\frac{y^{-4}}{-4} = 4x + C$$

$$⑨ y' = 4x^2 + 2x^3 + 4x + 1$$

$$\frac{dy}{dx} = 4x^2 + 2x^3 + 4x + 1$$

$$dy = (4x^2 + 2x^3 + 4x + 1) dx$$

$$dy = \int 4x^2 dx + \int 2x^3 dx + \int 4x dx + \int 1 dx$$

$$dy = \frac{4x^3}{3} + \frac{2x^4}{4} + \frac{4x^2}{2} + x$$

$$dy = \frac{4x^3}{3} + \frac{1x^4}{2} + 2x^2 + x + C$$

$$⑩ y' = 4x + 2$$

$$\frac{dy}{dx} = 4x + 2$$

$$dy = (4x + 2) dx$$

$$dy = \int 4x dx + \int 2 dx$$

$$dy = \frac{4x^2}{2} + 2x$$

$$dy = 2x^2 + 2x + C$$

$$⑧ y' = 5x^3 + 3x^2 + 2x + 4$$

$$\frac{dy}{dx} = 5x^3 + 3x^2 + 2x + 4$$

$$dy = (5x^3 + 3x^2 + 2x + 4) dx$$

$$dy = \int 5x^3 dx + \int 3x^2 dx + \int 2x dx + \int 4 dx$$

$$dy = \frac{5x^4}{4} + \frac{3x^3}{3} + \frac{2x^2}{2} + 4x$$

$$dy = \frac{5x^4}{4} + x^3 + x^2 + 4x + C$$

$$⑩ y' = 3x^3 + 2x^2 + 3x + 2$$

$$\frac{dy}{dx} = 3x^3 + 2x^2 + 3x + 2$$

$$dy = (3x^3 + 2x^2 + 3x + 2) dx$$

$$dy = \int 3x^3 dx + \int 2x^2 dx + \int 3x dx + \int 2 dx$$

$$dy = \frac{3x^4}{4} + \frac{2x^3}{3} + \frac{3x^2}{2} + 2x + C$$

$$⑩ y' = 3x^2 + 2x + 2$$

$$\frac{dy}{dx} = 3x^2 + 2x + 2$$

$$dy = (3x^2 + 2x + 2) dx$$

$$dy = \int 3x^2 dx + \int 2x dx + \int 2 dx$$

$$dy = \frac{3x^3}{3} + \frac{2x^2}{2} + 2x$$

$$dy = x^3 + x^2 + 2x + C$$