(7)

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

$$y' - \frac{2}{x+2}y = 0 \rightarrow \frac{dy}{dx} = \frac{2}{x+2}y \rightarrow \int \frac{dy}{y} = \int \frac{2}{x+2}dx =$$

$\ln y \; y \qquad 2\ln(x+2)$

$$\ln y = 2\ln(x+2) + C$$

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

$\boxed{y = 2Kx + 2}$ → Sol. ecuación dif. homogénea asociada

- $y = 2Kx + 2$
- $y' = 2K'x + 4K$

↓ Sustituimos

$$2K'x + 4K - \frac{2}{x+2}2K(x+2) = 2(x+2)^3$$

$$2K'(x) = 2(x+2)^3$$

$$K(x) = \int \frac{(x+2)^3}{x}dx = \frac{x^3}{3} + 3x^2 + 12x + 8\ln x + C, \quad C \in \mathbb{R}$$

$$\boxed{y = \left(2\frac{x^3}{3} + 6x^2 + 24x + 16\ln x + 2C\right)(x+2), \quad C \in \mathbb{R}}$$

↓ Solución ecuación diferencial