Tarea 3

Oscar Gerardo Hernández Martínez

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Ejercicio 1

$$\frac{dy}{dx} = \frac{x^2}{1-y^2}$$
$$(1-y^2)dy = x^2dx$$
$$\int (1-y^2)dy = \int x^2dx$$
$$y - \frac{y^3}{3} = \frac{x^3}{3} + C$$
$$\frac{3y-y^3}{3} = \frac{x^3}{3} + C$$
$$3y - y^3 = x^3 + C$$
$$y(3-y^2) = x^3 + C$$
$$y(\sqrt{}(3)+y)(\sqrt{}(3)-y) = x^3 + C$$

Ejercicio 2

$$\frac{dy}{dx} = \frac{3x^2+4x+2}{2(y-1)};\ y(0) = -1$$
$$2(y-1)dy = (3x^2+4x+2)dx$$
$$\int 2(y-1)dy = \int (3x^2+4x+2)dx$$
$$2\int (y-1)dy = \int (3x^2+4x+2)dx$$
$$2(\frac{y^2}{2} - y) = x^3 + 2x^2 + 2x + C$$
$$y^2 - 2y = x^3 + 2x^2 + 2x + C$$
$$y(y-2) = x^3 + 2x^2 + 2x + C$$
$$(y^2 - 2y + 1) = x^3 + 2x^2 + 2x + 1 + C$$
$$(y-1)^2 = x^3 + 2x^2 + 2x + 1 + C$$
$$(y-1)^2 = x(x^2+2x+2) + 1 + C$$
$$(y-1)^2 = x(x^2+2x+1+1) + 1 + C$$
$$(y-1)^2 = x[(x+1)^2+1] + 1 + C$$