

15) $dy = (2x - 5x^2) dx$

$y = x^2 - \frac{5x^3}{3} + C$

16) $\int \frac{1}{y+8} dy = \int dx$ $\ln(y+8) = x + C$

$y+8 = Ce^x$

$y = Ce^x - 8$

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

$3+y = -\frac{1}{x+C}$

$y = -\frac{1}{x+C} - 3$

18) $\int \frac{1}{\sqrt{y}} = \int 10 dx$

$2y^{1/2} = 10x + C$

$y^{1/2} = 5x + C$

$y = (5x + C)^2$

19) $(2+x) \frac{dy}{dx} = xy$

$\ln y =$

$\int \frac{1}{y} dy = \int \frac{x}{2+x} dx$

20) $x \frac{dy}{dx} = (x+1)y$ $\int \frac{1}{y} dy = \int \frac{x+1}{x} dx$

$\ln y = \int 1 + \frac{1}{x}$

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

$y = Cxe^x$

$$37) x^3 \frac{dy}{dx} = 3x$$

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

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

$$y^4 = 6x^2 + C$$

$$2^4 = 6(2)^2 + C$$

$$C = -8$$

$$y^4 = 6x^2 - 8$$

$$39) y^3(x^4+1)y' = x^3(y^4+1) \quad y(0) = 1$$

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

$$\frac{1}{4} \ln(y^4+1) = \frac{1}{4} \ln(x^4+1) + C$$

$$\ln(y^4+1) = \ln(x^4+1) + C$$

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

$$1^4+1 = C(0^4+1) \quad C = 2$$

$$y^4+1 = 2(x^4+1)$$

$$y^4 = 2x^4 + 1$$

No result

$$\left(\frac{1}{x}\right) = 0$$