

# Equações Diferenciais Ordinárias: Gabarito de Fatores Integrantes

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1. (a)  $y = \frac{e^x}{2} + Ke^{-x}$   
(b)  $y = e^x(x + K)$   
(c)  $y = e^{2x} + Ke^x$   
(d)  $y = -e^x + Ke^{2x}$   
(e)  $y = x^5 + K$   
(f)  $y = \frac{3}{4}x^2 + K$   
(g)  $y = xe^x - 1 + Ke^x = e^x(x + K) - 1$   
(h)  $y = \frac{1}{5}e^{2x} - 2 + Ke^{\frac{1}{2}x}$   
(i)  $y = Ke^{2x} + \frac{1}{9}e^{-x} + \frac{1}{3}e^x + 2$   
(j)  $y = Ke^{\frac{-2}{5}x} + \frac{5}{4}e^{2x} + \frac{10}{17}e^{3x}$   
(k)  $y = Ke^{-x} + x - 1$   
(l)  $y = Ke^{(-x^2)} + \frac{1}{2}$   
(m)  $y = Ke^{(-x^2)} + \frac{3}{2}$   
(n)  $y = Ke^{(-x^3)} + \frac{1}{3}$   
(o)  $y = 1 + Ke^{(-\sin x)}$
2. (a)  $y = \frac{e^x}{2} + \frac{e^{-x}}{2} = \frac{e^x + e^{-x}}{2} = \cosh x$   
(b)  $y = xe^x$   
(c)  $y = e^{2x}$   
(d)  $y = 3e^{2x} - e^x$   
(e)  $y = x^5 + 1$   
(f)  $y = \frac{3}{4}x^2 - \frac{7}{4} = \frac{1}{4}(3x^2 - 7)$   
(g)  $y = xe^x - 1$   
(h)  $y = \frac{1}{5}e^{2x} - 2 + \frac{15}{5}e^{\frac{1}{2}x}$   
(i)  $y = -\frac{22}{9}e^{2x} + \frac{1}{9}e^{-x} + \frac{1}{3}e^x + 2$   
(j)  $y = -\frac{57}{68}e^{\frac{-2}{5}x} + \frac{5}{4}e^{2x} + \frac{10}{17}e^{3x}$   
(k)  $y = 2e^{-x} + x - 1$   
(l)  $y = \frac{1}{2}(e^{(-x^2)} + 1)$

(m)  $y = \frac{3}{2} - \frac{1}{2}e^{(-x^2)}$

(n)  $y = \frac{2}{3}e^{(-x^3)} + \frac{1}{3}$

(o)  $y = 1 - e^{-\operatorname{sen} x}$