

Gabarito da Lista da Unidade III de MAT 147 - Cálculo II

2022-2

1. (a) $3y^2 - 2 \ln |1 + x^3| = c$
 (b) $y^{-1} + \cos x = c$
 (c) $2 \tan 2y - 2x - \operatorname{sen} 2x = c$
 (d) $y^2 - x^2 + 2(e^y - e^{-x}) = c$
 (e) $\tan y = c(1 - e^x)^3$
2. (a) $y = [2(1 - x)e^x - 1]^{1/2}$
 (b) $y = [3 - 2\sqrt{1 + x^2}]^{-1/2}$
 (c) $y = -\frac{3}{4} + \frac{1}{4}\sqrt{65 - 8e^x - 8e^{-x}}$
 (d) $y = \frac{\pi - \arcsen(3 \cos^2 x)}{3}$
3. (a) $y = c_1 e^t + c_2 t e^t$
 (b) $y = c_1 e^{-t} + c_2 e^{-2t}$
 (c) $y = c_1 e^{t/2} + c_2 e^t$
 (d) $y = c_1 e^{-3t/4} + c_2 t e^{-3t/4}$
 (e) $y = c_1 e^{-3t/2} + c_2 e^{3t/2}$
 (f) $y = c_1 e^{-3t} \cos 2t + c_2 e^{-3t} \operatorname{sen} 2t$
 (g) $y = c_1 \cos(\frac{3t}{2}) + c_2 \operatorname{sen}(\frac{3t}{2})$
4. (a) $y = \frac{1}{2} \operatorname{sen} 2t$
 (b) $y = -e^{(t - \frac{\pi}{2})} \operatorname{sen} 2t$
 (c) $y = -e^{-t/3} \cos 3t + \frac{5}{9} e^{-t/3} \operatorname{sen} 3t$
 (d) $y = (1 + 2\sqrt{3}) \cos t - (2 - \sqrt{3}) \operatorname{sen} t$
5. (a) $y = c_1 \cos t + c_2 \operatorname{sen} t - (\cos t) \ln(\tan t + \sec t)$
 (b) $y = c_1 e^{-2t} + c_2 t e^{-2t} - e^{-2t} \ln t$
 (c) $y = c_1 e^t + c_2 t e^t - \frac{1}{2} e^t \ln(1 + t^2) + t e^t \operatorname{arctan} t$
 (d) $y = c_1 \cos 2t + c_2 \operatorname{sen} 2t + \frac{1}{2} \int_a^t [\operatorname{sen} 2(t - s)] g(s) ds$
6. $\varphi(t) = \frac{1}{2} + t^2 \ln t$
7. $\varphi(t) = 4t^2 \ln t$