

Gabarito da Lista da Unidade III de MAT 147 - Cálculo II
2022-2

1. (a) $3y^2 - 2 \ln |1 + x^3| = c$ (d) $y^2 - x^2 + 2(e^y - e^{-x}) = c$
(b) $y^{-1} + \cos x = c$ (e) $\tan y = c(1 - e^x)^3$
(c) $2 \tan 2y - 2x - \operatorname{sen}2x = c$
2. (a) $y = [2(1-x)e^x - 1]^{1/2}$ (c) $y = -\frac{3}{4} + \frac{1}{4}\sqrt{65 - 8e^x - 8e^{-x}}$
(b) $y = [3 - 2\sqrt{1+x^2}]^{-1/2}$ (d) $y = \frac{\pi - \arcsen(3 \cos^2 x)}{3}$
3. (a) $y = c_1e^t + c_2te^t$ (e) $y = c_1e^{-3t/2} + c_2e^{3t/2}$
(b) $y = c_1e^{-t} + c_2e^{-2t}$ (f) $y = c_1e^{-3t} \cos 2t + c_2e^{-3t} \operatorname{sen}2t$
(c) $y = c_1e^{t/2} + c_2e^t$ (g) $y = c_1 \cos(\frac{3t}{2}) + c_2 \operatorname{sen}(\frac{3t}{2})$
(d) $y = c_1e^{-3t/4} + c_2te^{-3t/4}$
4. (a) $y = \frac{1}{2} \operatorname{sen}2t$ (c) $y = -e^{-t/3} \cos 3t + \frac{5}{9}e^{-t/3} \operatorname{sen}3t$
(b) $y = -e^{(t-\frac{\pi}{2})} \operatorname{sen}2t$ (d) $y = (1 + 2\sqrt{3}) \cos t - (2 - \sqrt{3}) \operatorname{sent}$
5. (a) $y = c_1 \operatorname{cost} + c_2 \operatorname{sent} - (\operatorname{cost}) \ln(\tan t + \sec t)$
(b) $y = c_1e^{-2t} + c_2te^{-2t} - e^{-2t} \ln t$
(c) $y = c_1e^t + c_2te^t - \frac{1}{2}e^t \ln(1 + t^2) + te^t \operatorname{arctant}$
(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. $\varphi(t) = 4t^2 \ln t$