Projeto Mathematical Ramblings

mathematicalramblings.blogspot.com

Resolver a EDO:

$x + e^{-x} y y' = 0$, com $y(0) = 1$

Resolução:

$y y' = -x e^{x}$

$\int_0^x y(x) y'(x)\ dx \ = \ -\int_0^x x e^x\ dx$

Seja $u = y(x)$, $du = y'(x) dx$.

$\int_1^{y(x)} u\ du \ = -x e^x + e^x$

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

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