EDO's Exatas .Exercícios

Professora: Fátima

1. Seja $u(x,y) = x^3 y$

   (a) Calcule $\dfrac{\partial u}{\partial x}$

   (b) Calcule $\dfrac{\partial u}{\partial y}$

   (c) Calcule $\dfrac{\partial}{\partial y}\left(\dfrac{\partial u}{\partial x}\right)$

   (d) Calcule $\dfrac{\partial}{\partial x}\left(\dfrac{\partial u}{\partial y}\right)$

2. Resolva a EDO:

$$(3x^2 y)dx + (x^3)dy = 0;\ y(1) = 2$$

3. Seja $u(x,y) = x^2 \cos y + y^2 e^x + x^2 + \text{sen}y$

   (a) Calcule $\dfrac{\partial u}{\partial x}$

   (b) Calcule $\dfrac{\partial u}{\partial y}$

   (c) Calcule $\dfrac{\partial}{\partial y}\left(\dfrac{\partial u}{\partial x}\right)$

   (d) Calcule $\dfrac{\partial}{\partial x}\left(\dfrac{\partial u}{\partial y}\right)$

4. Encontre implicitamente a solução geral da EDO:

$$(2x\cos y + y^2 e^x + 2x)dx + (-x^2 \text{sen}y + 2ye^x + \cos y)dy = 0$$

5. Resolva implicitamente a EDO:

$$(2x - y^2 \text{sen}x + y^3 e^x)dx + (2y\cos x + 3y^2 e^x)dy = 0;\ y(0) = 2$$