

PROBLEM SET #1

Use the method of separation of variables to find the general solution of the given separable differential equation. Write your answer in the implicit form $F(x,y)=c$ of level curves of a function $F(x,y)$ of two variables x,y .

$$\textcircled{1} \frac{dy}{dx} = \frac{x^2 - x^3}{y^2 + y^4}$$

$$\textcircled{2} \frac{dy}{dx} = \frac{(1-3x)^2}{(1-2y)^3}$$

$$\textcircled{3} (x^3+1)^2 \frac{dy}{dx} = x^2 y^3$$

$$\textcircled{4} y^3 \frac{dy}{dx} = \frac{x^2 \cos(x^3)}{\sqrt{1+y^4}}$$

TO BE CONTINUED