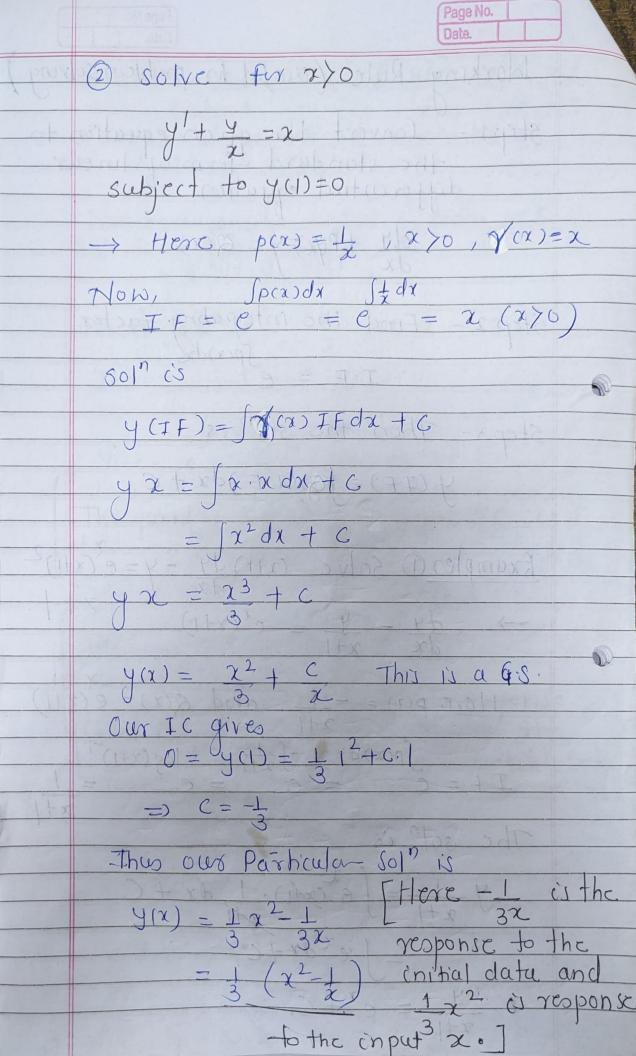
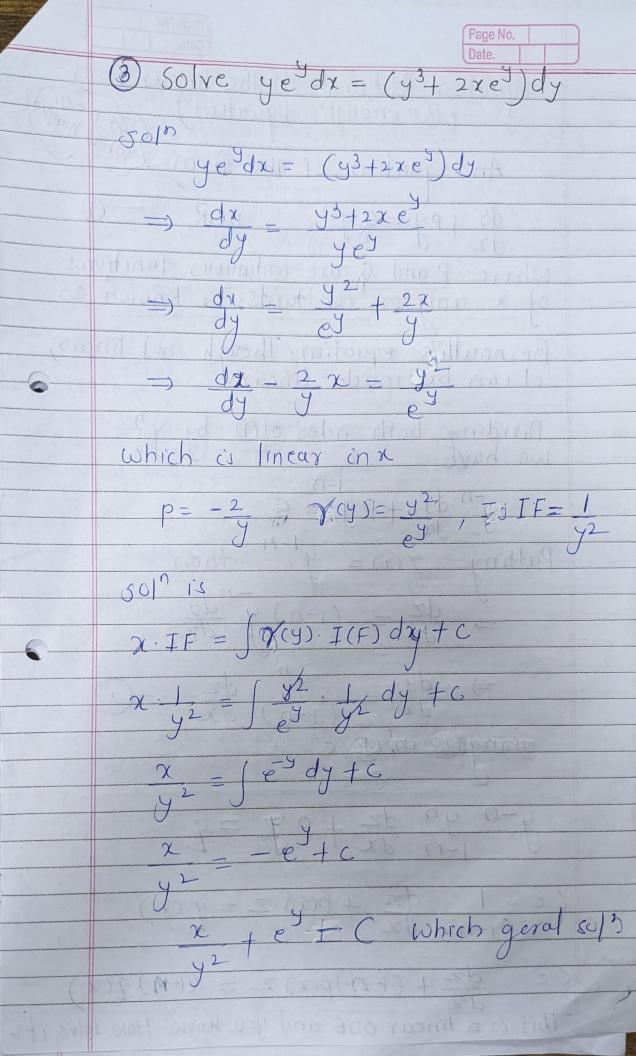
Morking Rule (useful for problem solving) Step1 - Convert the given equation to the standard form of linear differential equation $\frac{dy}{dx} + \frac{p(x)}{y} = \gamma(x)$ Step 2 - Find the integrating factor

Spexide

I.F = e Step3- Then the soln is y (IF) = [YOU(IF)dx+C. Framples () Solve (x+1) dy - y = $e^{\chi}(x+1)^2$ $\rightarrow \frac{dy}{dx} - \frac{y}{x+1} = e^{\chi}(x+1)$ Here $p(x) = -\frac{1}{2+1}$ and Q(x) = e(x+1)The solo is





Equation Reducible to the linear form (Bernoulle Equation An equation of the form dy + py = qyn, neir of x only or constants. is known as Bernoulli's equation. Though not linear, it can be made lineared Dividing both sides of 10 by y's $y^{-n} dy + py = q$ Puthny Za = y then $\frac{dz}{dx} = (1-n) \frac{-n}{y} \frac{dy}{dx}$ $= \frac{dy}{dx} = \frac{y'}{(1-n)} \frac{dz}{dx} = \frac{1}{(1-n)} \frac{dz}{dx}$ 5.0 goverhave $\frac{y-n}{1-n}\frac{dz}{dx}+\frac{p}{2}=\frac{q}{2}$ $(-e^{-1}) dx + p(x) Z = q(x)$ C-e dz + (1-10)pox) z = (1-10) 2(x) This is a linear ODE and you know How solve it-

