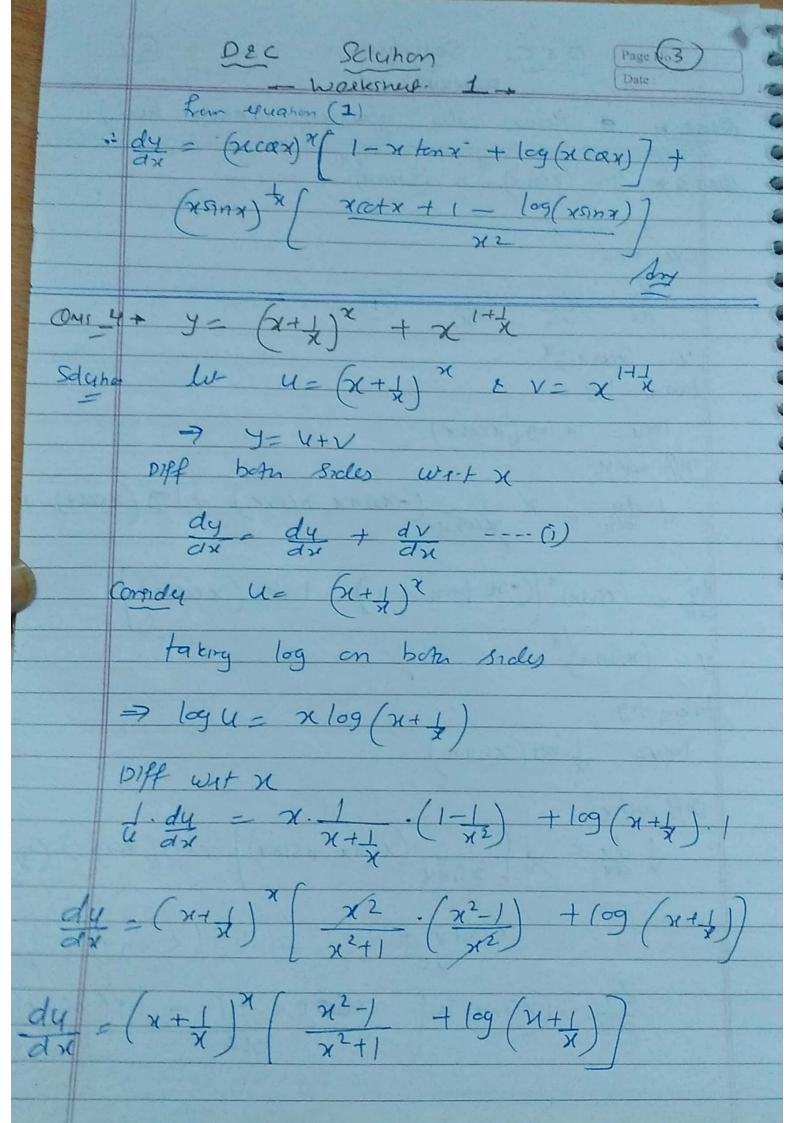


D&C Solution. Walkshut 1 One please do yoursely (easy hai) ONS 3 + Y = (x cos x) + (x 51 n x) x DIJ4 WIFX dy dy tov -1) 4= Excosn)x taking log logu= 21 log (xcox) Diff with 4 du = x. 1 (-x5nx + cox) + log dy - (xcax) x (-n fenn + 1) + log (xcosx) V= (MSINX)M taking log logv= 1 log (xsnn 1) If alt x 1. dv = 1 (1 (x cax + sinx)) + 109 (xsinx) (-1) X(otx + 1 + log(x SINX) (-1) dv = (xsinx) tr (x (x +1 - 19(xsinx)



DEC Now Consider V= (x) 1+1 taking log on both sides 109V= (1+1). 109x DIFF WILX $\frac{1}{\sqrt{2x}} = \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} = \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} = \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} = \frac{1}{\sqrt{2x}} + \frac{1}{\sqrt{2x}} +$ $\frac{dv}{dx} = \left(x\right)^{1+1} \left(\begin{array}{c} x+1 \\ x^2 \end{array}\right) = \frac{109x}{x^2}$ $\frac{dV}{dx} = \left(x\right)^{1+\frac{1}{2}} \left(\frac{x+1-\log x}{x^2}\right)$ put in eq (i) dy = (x+1) x (x2-1 + log(x+1)) + x x (x+1-logx Ous: 5 - y = x x cosx + x2-1 . Find dy Ships let $u = \chi^{\chi}(0) \times \chi^{\chi} = \chi^{2+1}$: 9= V+V Diff will x $\frac{dy}{dx} = \frac{du}{dx} + \frac{dv}{dx} = --\sin \frac{1}{2}$ Corridu U- XXCOIX taking log on both Sides logu= (x(ax).logx DIFF WIT X

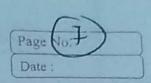
DEC Solution Page (10.5) Walkshey- 1 1. dy = (xcox). 1 + logx. (-xsnx + cosx) dy = x can (can - xsinx. logx + 19x.can) dy = x x cax (cox - (1+109x) - x snx. logx) Considy $V = \chi^2 + 1$ $\chi^2 = 1$ (No red to take log) Outhert Rule laga 0 $\frac{dV}{dx} = \frac{(x^2-1) \cdot (2x)}{(x^2-1)^2}$ 27 (x2-1-x2-1) $(x^{2}-1)^{2}$ (x2-1)2 put in egughon (1) : dy = x x (ax (1+1cgx) - x sinx. logx 16 - Y= (x+3) (x+y). (x+5) the taking log on both Sides

Dec Sclution Warehul 1 logy = log(x+3)2 + log(x+4)3 + log(x+5)4 194 = 2109 (x+3) + 3109 (x+4) + 4109 (x+5) DIFF WILX J. dy = 2.1 + 3 + 4 J. dy = 2.1 + 3 + 4 x+5 dy = y (2 + 3 + y)
dx (x+3 x+4 x+5) $\frac{dy}{dx} = (x+3)^{2} (x+4)^{3} \cdot (x+5)^{4} \cdot \left[\frac{2}{x+3} + \frac{3}{x+4} + \frac{4}{x+5} \right]$ $\frac{1-c-4}{x+3} + \frac{4}{x+5} \cdot \left[\frac{2}{x+3} + \frac{3}{x+4} + \frac{4}{x+5} \right]$ (n+3)(x+4)2/x+5)3/ open the Bracket) dy = (x+3)(x+4)2 (x+5)3. (9x2 + 70x + 133) Ams 4= (Qx. (08(2x).(08(3x) OM 7 A taking log on both Sides 109 y= 109(cax) +109(cos(2x)) +109(cos(3x)) DIFF WAF X

Dec Solution

worksnut = 1

= 1 (-sinx) + 1 (-2



 $\frac{1}{9} \frac{dy}{dx} = \frac{1}{(3n)} \frac{(-3nn(3n))}{(3n)} + \frac{1}{(3nn(3n))} + \frac{1}{(3nn(3n))}$

dy = y [-tenx - 2 ten(2x) - 3 ten(3x)]

dy - - Can. Cos(24). Cos(34) (fenx + 2 fen (24) + 3 fen (34))

ON18 + (COX) = (COSY) X

taking log on born Sides

y 10g (cax) + x 10g (cay)

DIFF WIT X

=> y. 1 (-sinx) + log (cox) dy

= x.1 (-siny).dy + log(cosy).1

=> - y tenn + log((ax)) dy = - n teny dy ax

der (100 (COX) + x teny) = 100 (COX)

=> dy (log (cax) + x teny) = log (cory) + y tenx

og (cory) + ytenx Any

Solyhon Dec warkshur 1 Date: On 9- x = yx (do yoursey eary hai) Caluady done in Notes / lecher) ON 11 + Yx + xy = 1 Solyho let yx = u and xy=v : 4+v=1 Diff with $\frac{dy}{dn} + \frac{dv}{dn} = 0 ---(1)$ Corridy U= yx taking log on both sides logu= xlogy piff wit X 1. du = x. f. dy + 109y. 1 $\frac{dy}{dx} = y^{x} \left(\frac{x}{y} \frac{dy}{dx} + (09y) \right)$ cryidy V= x9 taking log on bornsides logv= ylogx DIFF WIT X

Workshur I DEC (SOLUTIONS) J. dv y. 1 + logx dy Tody xy y + logx dy Put in equation (i) # y" n ay + logy) + x" y + logx dy = 0 = dy / yx. x + 2y. logx) = - yx. logy - xy.y - (y7. 1094 + x 3-14) Ans - (y7. 1094 + x 1094) ON-12+ xyfyy + xy = ab Soul let n'= y; y?- v and y?- w => U+V+W 20b Diff with x $\frac{dy}{dx} + \frac{dv}{dx} + \frac{dw}{dx} = 0$ (onstant ka $\frac{dy}{dx} + \frac{dv}{dx} + \frac{dw}{dx} = 0$ (onstant ka $\frac{dy}{dx} - --(i)$ 4= xy 10gu= 4/0gx 1 dy = 4. 1 + logy. dy

waskind 1 DEC (Solution) dy = xy | x + logx dy | omide V= y DIFF WHY J-dv = x. J. dy + 1099. 1 1x = yx (2 dy + logy) midu W= x2 logu= xlogx Diff with X to dw = x 1 + logx.) dw = xx (1+ 109x) put all in equation (i) x = (x + 109x . dy) + y x (x . dy + 109y) + xx (1+109x) =0 => 9 (x -'y + logx dy) + (y x dy + logy) +xx(1+1097)=0 take dy common

