

If  $x^2 + y^2 = 1$ , then

(2000S)

(a)  $yy'' - 2(y')^2 + 1 = 0$

(b)  $yy'' + (y')^2 + 1 = 0$

(c)  $yy'' + (y')^2 - 1 = 0$

(d)  $yy'' + 2(y')^2 + 1 = 0$

**(b)** Given  $x^2 + y^2 = 1$ . Differentiating w.r.t.  $x$ , we get  
 $2x + 2yy' = 0$  or  $x + yy' = 0$ . Again differentiating w.r.t.  $x$ ,  
we get  $1 + y'y' + yy'' = 0$  or  $1 + (y')^2 + yy'' = 0$