

Solve the following Differential Equations:

$$1) (x + \tan^{-1} y)dx + \left(\frac{x+y}{1+y^2} \right)dy = 0$$

$$2) \left(\frac{2x^{5/2} - 3y^{5/3}}{2x^{5/2}y^{5/3}} \right)dx + \left(\frac{3y^{5/3} - 2x^{5/2}}{3y^{5/3}x^{5/2}} \right)dy = 0$$