Math 260 Quiz # 2b

Name: Solution Serial # _____

1. Solve the initial value problem: $(x^2+4)y' + 3xy = x \quad ; y(0) = 3$

See version (a), the solution is

$$y(x) = \frac{1}{3} + \frac{64}{3}(x^2+4)^{-3/2}$$

$C = \frac{64}{3}$

---

2. Put the following DE in the standard form as a linear DE, regarding y as the independent variable rather than x. Then solve it: $(2xy+1)\frac{dy}{dx} = y^2 + 1$

See version (a), the solution is

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