

Homework/ First order ordinary differential equations

Solve the following first order differential equations:

1- $xy + \sqrt{1 + x^2} \bar{y} = 0$

2- $(3xy^2 - y^3)dx = -(3yx^2 - 3xy^2)dy$

3- $\frac{2x}{y^3} dx + \frac{y^2 - 3x^2}{y^4} dy = 0$

4- $\bar{y} = y + 2y^5$

5- $t\bar{y} - 2y - 4t^3 \cos(4t) = 0$; $y(\pi/8) = 0$

6- $y\bar{y} + 4xy\bar{y} - y^2 = 1$

7- $\bar{y} = 4y + 2e^x \sqrt{y}$

8- $x^3\bar{y} + 8x^2y\bar{y} + 4xy^2 - y^3 = 0$