

MA3180 (Financial Mathematics I) Assignment 6

Solve the following equations for the general solutions,

1. $x dx + y dy = 0$.

2. $2x(y + 1)dx - y dy = 0$.

3. $(xy^2 - x)dx + (x^2y + y)dy = 0$.

4. $(y^2 - x^2)dx - 2xy dy = 0$.

5. $y' = \frac{2y^4 + x^4}{xy^3}$.

6. $(x + y)dx - (x - y)dy = 0$.

7. $(2x - 6y + 3)dx - (x - 3y + 1)dy = 0$.

8. $(2x + y + 1)dx + (4x + 2y + 3)dy = 0$.

Solve the following the equation for a particular solution (initial problems),

9. $(1 + y^2)dx + (1 + x^2)dy = 0, y(0) = -1$.

10. 12. $(y + \sqrt{x^2 + y^2})dx - x dy = 0, y(1) = 0$.

11. $y' = \frac{x^2 + y^2}{xy}, y(1) = -2$.

12. $ty' = y + te^{y/t}, y(1) = 0$.