

EXERCISES OF CHAPTER 1

Solve the following differential equations.

Question 1. $8x^3ydx = (x^4 + 1)dy$.

Question 2. $[y \cos(xy) - \sin(x)]dx + [x \cos(xy)]dy = 0$.

Question 3. $2xy' - y = 2x^2$, $x > 0$, $y(1) = \frac{1}{3}$.

Question 4. $y'' = \frac{2}{1-y}(y')^2$.

Question 5. $(4xy + 6y^2)y' + 3x^2 + 2y^2 = 0$.

Question 6. $xdy - 4ydx = x\sqrt{y}dx$.

Question 7. $x^2 + t^2 \frac{dx}{dt} = tx \frac{dx}{dt}$.