Practice Exercise For Lecture 19

Q1. Use implicit differentiation to find $\frac{dy}{dx}$ *if* $2xy = x + y - y^2$.

Answer. $\frac{dy}{dx} = \frac{1-2y}{2x+2y-1}$

Q2. Use implicit differentiation to find $\frac{dy}{dx}$ *if* $x^5 + 3y^4 - y^3 + x^3y = 4$.

Answer. $\frac{dy}{dx} = \frac{-x^2(3y+5x^2)}{12y^3 - 3y^2 + x^3}$

Q3. Use implicit differentiation to find $\frac{dy}{dx}$ *if* $y^2 - 2x = 1 - 2y$.

Answer. $\frac{dy}{dx} = \frac{1}{y+1}$

Q4. Find $\frac{dy}{dx}$ if $x^2 + y^2 = 4$

Answer. $\frac{dy}{dx} = \frac{-x}{y}$

Q5. If $x^q = y^p$ then find $\frac{dy}{dx}$ in terms of variable "x".

Answer. $\frac{dy}{dx} = \frac{q}{p} x^{\frac{q}{p}-1}$