

EXERCISES – Implicit Differentiation

(A) Differentiate the following relations *Implicitly*

1. $x^2 + y^2 = 9$

2. $y^2 + y + 3 = x$

3. $x^3 + y^3 = 1$

4. $x^2 + 3xy + y^2 = 4$

5. $x^2 + 3xy^2 = 10$

6. $x.(1 + y^2) = 12$

7. $x^3 - xy + y^3 = 1$

8. $x^2 \cdot y^2 = x^2 + y^2$

9. $y^2 = xy + 6$

Answers

(1) $\frac{-x}{y}$

(2) $\frac{1}{2y+1}$

(3) $\frac{-x^2}{y^2}$

(4) $\frac{-(2x+3y)}{3x+2y}$

(5) $\frac{-(2x+3y^2)}{6xy}$

(6) $\frac{-(1+y^2)}{2xy}$

(7) $\frac{y-3x^2}{3y^2-x}$

(8) $\frac{x(1-y^2)}{y(x^2-1)}$

(9) $\frac{y}{2y-x}$