RAVI MATHS TUITION CENTER, CHENNAI-82. WHATSAPP - 8056206308

Differential Equations

12th Standard

Maths

5 x 2 = 10

1) For each of the differential equations in Exercises, find the general solution:
$\frac{dy}{dx} = \frac{1-\cos x}{1+\cos x}$

2) For each of the differential equations in Exercises, find the general solution:
$\sec^2 x \tan y dx + \sec^2 y \tan x dy = 0$

3) Find the differential equation of the family of lines passing through the origin.

4) Find the sum of the order and degree of the following differential equations :
$\frac{d^2y}{dx^2} + \sqrt[3]{\frac{dy}{dx}} + (1+x) = 0$

5) Find the general solution of differential equation $\log\left(\frac{dy}{dx}\right) = x + 1$

5 x 3 = 15

6) Form the differential equation represending the family of curves y = e^{2x} (A + Bx), where A and B are constants.

7) Show that the general solution of the differential equation $\frac{dy}{dx} + \frac{y^2+y+1}{x^2+x+1} = 0$ is given by (x + y + 1) = A (1 - x - y - 2xy), where A is parameter.

8) Solve: (x^3 + y^3) dy - x^2y dx = 0.

9) Solve the differential equation : $\frac{dy}{dx}$ = e^{x-y} + x^3 e^{-y}.

10) Find the general solution of the differential equations: $ydx - \left(x + 2y^2\right) dy = 0$.

5 x 5 = 25

11) Find the particular solution satisfying the given condition : $x^2dy + \left(xy + y^2\right) dx = 0$; y = 1, when x = 1.

12) Find the particular solution of the differential equation $\frac{dy}{dx} = \frac{xy}{x^2+y^2}$ given that y = 1, when x = 0.

13) Find the particular solution of the differential equation : x^2dy = y(x + y)dx = 0, when x = 1, y = 1.

14) Find the particular solution of the differential equation
(3xy+y^2)dx+(x^2+xy)dy = 0 for x = 1, y = 1

15) Solve the following differential equation:
$xcos\left(\frac{y}{x}\right)(ydx + xdy) = ysin\left(\frac{y}{x}\right)(xdy - ydx)$

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