(key) Zain

1- $dy/dx + xy/(1-x^2) = xy^{1/2}$ → Bernouli

2- $(D^3 - 3D^2 + 4)y = 0$ then the solution → $-1, 2, 2$

3- $\frac{dy}{dx} + y\cos x - \sin x$ has degree → 1

4- $dx/dt + t^2x - 2tx^5 = 0$ is an eq. of → ~~Clairaut eq.~~ Bernouli

5- $y = x\,dy/dx + 1/4\,(dy/dx)^4$ → cauchy-Euler

6- $a_0 x^n (d^n y)/(dx^n) + a_1 x^{(n-1)}$ → cauchy-Eluller

7- $F(x, y, dy/dx, \ldots d^n y/dx^n) = 0$ → ~~Partial~~ Linear

8- $y[dy/dx]^6 + x^2[(d^3y)/(dx^3)]^5 + xy = \cos x$ 35

9- $(d^2y)/(dx^2) + xy(dy/dx^2) = 0$ 1

10- $[1 + (dy/dx)^2]^{3/2} = (d^2y)/(dx^2)$ 3

11- $f(x,y) = x^2 + y^2$ then $df/dx =$

12- $dy/dx = x^2/y$ is Seprable Equation

13- $\int \tan\theta\, d\theta$ $\sec\theta \tan\theta$

14- $f(x,y) = y\sin^2 x - y^2\cos x + h(y)$ $2y\sin x\cos x + y^2\sin x$

15- $dy/dx + P(x)y = Q(x)y^n$ Bernouli eq.

16- $(D^2 + 4D + 3)y = 0$ Homogenious

17- $\int y\,dy = y^2/2 + c$

18- $[1 + (dy/dx)^2]^{1/3} = d^2y/dx^2$ 1

19- $P^2 + P - 6$ $(2, -3)$

20- ϕ_1 is the angle b/w the radius vector Then $\tan\phi_1 \tan\phi =$ -1

$x\,dy = x\,dx$

$\frac{dy}{dx} = \frac{x}{y}$

- $M(x,y)\,dx + N(x,y)\,dy = 0$ — Exact
- $P(x) = \frac{4}{x-1}$ then I.F is — $(x-1)^4$
- $D^4 - 4D^3 - 7D^2 + 22D + 24 = 0$ — $-1, -2, 3, 4$
- $\frac{dy}{dx} + P(x) = Q(x)$ — linear
- $(D^2 + 4D + 3)y = 0$ — $(-1, -3)$
- $y\,dx = (x - x^2 y)\,dy$ — (Not exact)
- $x^2\,dy + y^2\,dx = 0$ — (1st order, 1st degree)
- $\frac{dx}{dt} = 2, x(0) = \alpha$ Then α — $(x - 2t)$
- $x\,dy/ = x\,dx$ — (y/x)
- $y = u^2 + C$ — (3)
- $y = c_1 \cos x + c_2 \sin x$ — (1)
- $y[dy/dx]^6 + x^2 [d^3y/(dx^3)]^5 + xy = \cos x$ — (5)

$x\frac{\partial z}{\partial x} + y\frac{\partial z}{\partial y} - nx$ (1)

~~$x^2 dy$~~

$dy/dx - 4y - 4 = y^2$ (Clairauty Eq.)

$f(x,y) = x^2y + 2x + h(y)$ (None)

$\frac{\partial m}{\partial y} \neq \frac{\partial n}{\partial x}$ (Not exact)

$f(x,y)dx + x\sin y\, dy = 0$ $(x\cos y)$

$\int y\, dy = 0$

$(dy/dx)^2 = (d^2y/dx^2 + y)^{3/2}$ (Non linear)

$y = A\cos x + B\sin x$ and $y(\pi) = 5$ (-1)

$\frac{dy}{dx} + y\cos x = \sin x$ (linear)

$(D^2 - 5D + 6)y = \sin 3x$ (Non-homogenious)

$xM - yN = 3x^3y^3$ (None)

Eq.)

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us)

$\star$ $dy/dx + y = xy^3$ (None)

$\star$ $(\partial^2 u)/(\partial x^2) + (\partial^2 v)$ (homogenious)