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|----------------------------|---------------------------|----------------------------|
| 1) linear, first order | 5) linear, first order | 9) nonlinear, second order |
| 2) nonlinear, second order | 6) nonlinear, first order | 10) nonlinear, third order |
| 3) linear, third order | 7) nonlinear, first order | 11) linear, second order |
| 4) linear, fifth order | 8) nonlinear, third order | 12) nonlinear, first order |

13) $y^2 = e^x + c$

29) $s = e^{\left(\frac{t^3}{3} - 2t\right)}$

14) $y = Cx^3$

30) $x = ce^{2t} + \frac{t^3}{3}e^{2t}$

15) $y = \frac{1}{2}\ln(1+x^2) + c$

31) $\ln y = e^{\int x f(t) dt} \left[\int a(t) e^{-\int_t f(t) dt} dt + c \right]$

16) $x = y^y + cy^y e^{-y}$

32) $\frac{1}{y^2} = x^2 e^{-2x} + ce^{-2x}$

17) $-y \sin x + \frac{x^2}{2} = \frac{\pi^2}{8} - 1$

33) $-\frac{1}{y} = x + \frac{x^3}{3} - 1$

18) $z = \tan\left(c + \frac{r^3}{3}\right)$

34) $y(1+x)^3 = 2401$

19) $e^{-x} = \sin t + c$

35) $y = C \cos x - 3$

20) $ye^x = \tan^{-1}(e^x) + c$

36) $2\left(\frac{y}{x}\right)^{1/2} = \ln x + c$

21) $\frac{1}{2}(x^2 y^2 + y^4) + y^2 + c = 0$

37) $xy^2 - x^2 y = 2$

22) $1 = \frac{x}{y^2 - x^2}$

38) $\ln x + c = \ln \left| \frac{y}{x} + \left(1 + \left(\frac{y}{x}\right)^2\right)^{1/2} \right|$

23) $y = \sin(x+c)$

39) $e^{xy} + 4xy^3 - y^2 + c = 0$

24) $y = e^{1/2(e^{x^2} - 1)}$

40) $y^2 = -\frac{x^2}{2} - \ln x + c$

25) $\ln x = (\sin y) - 1$

41) $xy = x^3 \ln x + 5$

26) $\ln\left(\frac{x}{y}\right) + \tan^{-1}\left(\frac{y}{x}\right) + c = 0$

42) $x^2 + 4y^2 = cx^{-2/3}$

27) $\ln x = -e^{-y/x} + 1$

43) $y = x^2 \ln x + cx^2$

28) $P = Ce^{\sin Q - \cos Q}$

44) $y = \frac{1}{2a} + \frac{1}{2} \frac{a^2}{a^2 + 4} \left(\frac{1}{a} \cos 2x + \frac{2}{a^2} \sin 2x \right) + ce^{-ax}$