

1) $y = \ln |\cos(c_1 - x)| + c_2$

2) $y = -\ln \left| c_1 - \frac{x^2}{2} \right| + c_2$

3) $y = \frac{-1}{c_1} (1 - c_1^2 x^2)^{1/2} + c_2$

4) $x = \frac{1}{6} (4y + c_1)^{3/2} + c_2$

5) $y = x$ is one solution.
Can you find the others?

6) $y = -\ln |\cos(x + c_1)| + c_2$

7) $e^{xy} - 4y^3 = 5$

8) $y = c_1 x \sin(\ln x) + c_2 x \cos(\ln x)$

9) $y = c_1 e^{-2x} + c_2 x$

10) $y = c_1 + c_2 e^{(1/3)x}$

11) $y = c_1 \cos 3x + c_2 \sin 3x$

12) $y = c_1 + c_2 e^{-(1/2)x} + c_3 x e^{-(1/2)x}$

13) $y = c_1 e^{-6x} + c_2 e^{7x}$

14) $y = 2 \cos 4x + \left(-\frac{1}{2} \sin 4x \right)$

15) $y = e^x$

16) $y = 2 + 3x + 2x^2 + \frac{5}{6} x^3$

17) $y = -\frac{7}{4} e^{-(1/2)x} + \frac{11}{4} e^{(3/2)x}$

18) $y = -e^{x-1} + e^{2(x-1)}$

19) $y = \frac{5}{36} - \frac{5}{36} e^{-6x} + \frac{x}{6} e^{-6x}$

20) $-\frac{1}{3} \ln |1 - 3y| = \frac{x^3}{3} + c$

21) $x e^{-y} = -y e^{-y} - e^{-y} + c$

22) $y = \frac{1}{6} e^{-x} + \frac{1}{15} e^{2x} + \frac{1}{10} e^{-3x}$

23) $y = (4 \cos x - 17 \sin x) e^{4x}$

24) $xy = -x \cos x + \sin x + c$

25) $(1 + e^x) y = c$

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