1. The functions are independent for all real x.

2. The functions are independent for all real $x \neq 0$.

3. The functions are independent for all real $x \neq 0$.

4. $y = C_1 \exp\left(-\frac{5}{4}x\right)\cos\left(\frac{\sqrt{15}}{4}x\right) + C_2 \exp\left(-\frac{5}{4}x\right)\sin\left(\frac{\sqrt{15}}{4}x\right)$

5. $y = C_1 e^{3x}\cos(2x) + C_2 e^{3x}\sin(2x)$

6. $y = \frac{62}{15} - \frac{17}{15}e^{-5x} - \frac{5}{3}xe^{-5x}$

7. $y = \frac{22}{13}e^{x} + \frac{27}{13}e^{-2x}\cos(2x) + \frac{139}{104}e^{-2x}\sin(2x)$

8. $y = C_1\cos(3x) + C_2\sin(3x) + \frac{1}{2}\sin x$

9. $y = C_1 e^{\frac{1}{2}x} + C_2 e^{3x} + \left(-\frac{39}{4} + \frac{9}{2}x - \frac{3}{2}x^2\right)e^{x}$

10. $y = C_1 e^{x} + C_2 e^{-x} - \int_0^x e^{t}\sec(3t)\ dt + \int_0^x e^{-t}\sec(3t)\ dt$

11. $y = C_1 e^{2x} + C_2 e^{-2x} - \frac{1}{2}\sin^2 x - \frac{1}{8}\cos(2x)$

12. $y = C_1 x^{-\frac{3}{4}}\cos\left(\frac{\sqrt{47}}{4}\ln x\right) + C_2 x^{-\frac{3}{4}}\sin\left(\frac{\sqrt{47}}{4}\ln x\right)$

13. $y = \frac{1}{x}\left(C_1 + C_2\ln x + C_3(\ln x)^2\right)$