Appendix A
Examples and Answers.

At present, here are just a few first-order equations. I may add some second-order equations at a later date if and when the spirit moves me.

1. $\ln\dfrac{dy}{dx} = x + y$ $\qquad$ $\underline{\underline{e^{-y} = C - e^{x}}}$

2. $\dfrac{dy}{dx} + \dfrac{xy}{x^2 - 3xy + y^2} = 0$ $\qquad$ $\underline{\underline{\dfrac{(x-y)^2 y}{2x - y} = C}}$

3. $(2\sqrt{xy} - x)\dfrac{dy}{dx} + y = 0$ $\qquad$ $\underline{\underline{\sqrt{\dfrac{x}{y}} + \ln y = C}}$

4. $xy + (y^4 - 3x^2)\dfrac{dy}{dx} = 0$ $\qquad$ $\underline{\underline{y^6 = C(x^2 - y^4)}}$

5. $y^3\dfrac{dy}{dx} + x + y^2 = 0$ $\qquad$ $\underline{\underline{\ln(y^4 + 2xy^2 + 2x^2) - 2\tan^{-1}\left(\dfrac{y^2 + x}{x}\right) = C}}$

6. $\dfrac{dy}{dx} = \dfrac{2x + 4y + 8}{x - y - 2}$ $\qquad$ $\underline{\underline{(2x + y + 2)^3 = C(x + y + 2)^2}}$

7. $\dfrac{dy}{dx} + \dfrac{3y}{x} = \dfrac{x + 1}{x}$ $\qquad$ $\underline{\underline{12yx^3 = 3x^4 + 4x^3 + C}}$

8. $\dfrac{dy}{dx} + y = xy^3$ $\qquad$ $\underline{\underline{\dfrac{1}{y^2} = x + \tfrac{1}{2} + Ce^{2x}}}$

9. $\dfrac{dy}{dx} = \dfrac{x - y + 2}{x + y - 3}$ $\qquad$ $\underline{\underline{x^2 - 2x(y-2) - y^2 + 4y = C}}$