Practise Problems

1. $xy\frac{dy}{dx} = (y-1)(x+1) \qquad y\left(-\frac{1}{2}\right) = -\frac{1}{2}$

2. $\frac{dy}{dx} = \frac{1-y^2}{1-x^2}$

3. $\frac{dy}{dx} = 1-y^2$

4. $\frac{dy}{dx} = \frac{y^2}{x} \qquad y(1) = 2$

5. $\frac{dy}{dx} = -\frac{2x+y}{x+2y}$

6. $\frac{dy}{dx} = -\frac{y-x^2}{x+y^2}$

7. $\frac{dy}{dx} = -\frac{(1+e^y)e^x}{(1+e^x)e^y}$

8. $\frac{dy}{dx} + x^3y(x) = 2x^3$

9. $\frac{dy}{dx} + \frac{1}{x}\,y(x) = 2$

10. $\frac{dy}{dx} + \cos x\, y(x) = \sin 2x \qquad y(\pi) = 0$