EDDE. REVISION PROBLEM SET 1-4

1. Solve the differential equations:

   a) $xy' = \operatorname{tg} y$;

   b) $y' = (x \sin x - \cos x) \cdot y$;

   c) $(2x - y)y' + 2y = 0$;

   d) $y' + 1 = e^{-y}$;

   e) $y' = (2x + 8y + 2)^2$.

2. Solve the differential equations with the initial conditions:

   a) $xy' = \operatorname{tg} y$ and $y(1/4) = \pi/3$;

   b) $y' = y + 1$ and $y(0) = 1$;

   c) $x^2 + y^2 + 2xyy' = 0$ and $y(-3) = 2$;

   d) $y' + y = \sin x$ and $y(-2\pi) = 2$.

3. Solve the differential equations:

   a) $x - xy + (x^2 + y)y' = 0$;

   b) $\frac{x}{(1-y)^2} + \frac{x^2+y}{(1-y)^3}y' = 0$.

   Hint: a) and b) are equivalent in some sense.