Problem 1. For every of the following 1-form, plot direction field defined by equation $\omega = 0$.

(a) $\omega = 2 \, dx + 4 \, dy$
(b) $\omega = 2x \, dx + 2y \, dy$
(c) $\omega = 2y \, dx - 3x \, dy$
(d) $\omega = 2y \, dx + 5x \, dy$

Problem 2. Solve the following equations:

(a) $(2x + 3x^2y)dx + (x^3 - 3y^2)dy = 0$;
(b) $2xy \, dx + (x^2 - y^2) \, dy = 0$;
(c) $\dot{x} = \frac{(9t^2-2)}{x(4x^2-6x)}$;
(d) $e^{-y} \, dx - (2y + xe^{-y}) \, dy = 0$. 