Problem 1. Find all solutions of the following differential equation. Find a particular solution satisfying the initial condition.

(a) $\dot{x} = t^2, \quad x(0) = 2$;
(b) $\dot{x} = e^x, \quad x(0) = 1$;
(c) $\dot{x} = -3x, \quad x(3) = 10$;
(d) $\dot{x} = x^2, \quad x(0) = 0, \quad x(0) = 1, \quad x(0) = -1$;
(e) $\dot{x} = \sqrt[3]{x^2}, \quad x(0) = 0$;
(f) $\dot{x} = 2x + t, \quad x(0) = -1/4$. 