Math 110, Fall 2014. ODE Practice Problems

Determine the general solution to the following systems of linear ODE:

1.
$$\begin{aligned} x_1'(t) &= 2x_1(t) - x_3(t) \\ x_2'(t) &= x_2(t) + x_3(t) \\ x_3'(t) &= x_2(t) \end{aligned}$$

2.
$$\begin{aligned} x_1'(t) &= x_1(t) + x_2(t) + x_3(t) \\ x_2'(t) &= x_1(t) + x_2(t) + x_3(t) \\ x_3'(t) &= -2x_1(t) - 2x_2(t) - 2x_3(t) \end{aligned}$$

3.
$$\begin{aligned} x_1'(t) &= x_1(t) + x_2(t) \\ x_2'(t) &= x_2(t) + x_3(t) \\ x_3'(t) &= -x_2(t) - x_3(t) \end{aligned}$$