

MthSc 208: Differential Equations (Summer II, 2012)
In-class Worksheet 4b: Systems of differential equations (real eigenvalues)

NAME:

Consider the system of differential equations:
$$\begin{cases} x_1' = -2x_1 + x_2 - 12, & x_1(0) = 5 \\ x_2' = 4x_1 + x_2 - 18, & x_2(0) = 20 \end{cases}$$

1. Write this in matrix form, $\mathbf{x}' = \mathbf{A}\mathbf{x} + \mathbf{b}$, and find the steady-state solution, \mathbf{x}_{ss} .

2. Make a change of variables to transform the system into a homogeneous system.

