Suggested problems 27

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1. Find the general solution of each system below.

   (a) $\bar{x}' = \begin{pmatrix} 2 & 7 \\ -5 & -10 \end{pmatrix} \bar{x}$

   (b) $\bar{x}' = \begin{pmatrix} -3 & 6 \\ -3 & 3 \end{pmatrix} \bar{x}$

   (c) $\bar{x}' = \begin{pmatrix} 8 & -4 \\ 1 & 4 \end{pmatrix} \bar{x}$

2. Solve the following initial value problem.

   (a) $\bar{x}' = \begin{pmatrix} 1 & 4 \\ 2 & 3 \end{pmatrix} \bar{x}, \qquad \bar{x}(1) = \begin{pmatrix} 0 \\ 3 \end{pmatrix}$

   (b) $\bar{x}' = \begin{pmatrix} 3 & 5 \\ -2 & 1 \end{pmatrix} \bar{x}, \qquad \bar{x}(243) = \begin{pmatrix} 5 \\ 14 \end{pmatrix}$