

**Homework for section 1.2 Sec 1.3 Due: Jan 28 (Wednesday)**  
**You have to show your work to get full credits.**

Sec 1.2

Find the general solutions of the system whose augmented matrix are given in the following.

Problem 9.  $\begin{bmatrix} 0 & 1 & -6 & 5 \\ 1 & -2 & 7 & -6 \end{bmatrix}$

Problem 11.  $\begin{bmatrix} 3 & -4 & 2 & 0 \\ -9 & 12 & -6 & 0 \\ -6 & 8 & -4 & 0 \end{bmatrix}$ .

Problem 13.  $\begin{bmatrix} 1 & -3 & 0 & -1 & 0 & -2 \\ 0 & 1 & 0 & 0 & -4 & 1 \\ 0 & 0 & 0 & 1 & 9 & 4 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ .

Problem 19. Choose  $h$  and  $k$  such that the system has (a) no solution (b) a unique solution (c) many solutions. Give separate answers for each part.

$$\begin{aligned}x_1 + hx_2 &= 2 \\ 4x_1 + 8x_2 &= k\end{aligned}$$

Sec 1.3

Problem 5. Write a system of equations that is equivalent to the given vector equation.  $x_1 \begin{bmatrix} 6 \\ -1 \\ 5 \end{bmatrix} + x_2 \begin{bmatrix} -3 \\ 4 \\ 0 \end{bmatrix} = \begin{bmatrix} 1 \\ -7 \\ -5 \end{bmatrix}$ .

Problem 9. Write a vector equation that is equivalent to the given system of equations.

$$\begin{aligned}x_2 + 5x_3 &= 0 \\ 4x_1 + 6x_2 - x_3 &= 0. \\ -x_1 + 3x_2 - 8x_3 &= 0\end{aligned}$$