

Practice 2g: p. 81 B7, B9, plus instructor questions below:

Because question *B5* got split among several lectures, I've created some more B5-type questions here, so that you can do all the steps at the same time. You can also go back and do the A5 questions if you still need more practice.

For each of the following systems of linear equations:

- (i) Write the augmented matrix.
- (ii) Obtain a row equivalent matrix in row echelon form.
- (iii) Determine whether the system is consistent or inconsistent. If it is consistent, then determine the number of parameters in the general solution.
- (iv) If the system is consistent, write its general solution in standard form.

$$\begin{array}{rclclcl} & 2x_1 & + & 6x_2 & + & 7x_3 & = & 6 \\ \text{(a)} & 3x_1 & + & 9x_2 & + & 3x_3 & = & -6 \\ & -2x_1 & - & 4x_2 & - & 6x_3 & = & 5 \end{array}$$

$$\begin{array}{rclclcl} & x_1 & - & x_2 & + & 3x_3 & + & 7x_4 & = & -3 \\ \text{(b)} & 3x_1 & - & 5x_2 & + & 11x_3 & + & 5x_4 & = & 7 \\ & -2x_1 & + & 3x_2 & - & 7x_3 & - & 6x_4 & = & 0 \end{array}$$

$$\begin{array}{rclclcl} & x_1 & - & x_2 & & & + & 2x_4 & = & 5 \\ \text{(c)} & 5x_1 & - & 5x_2 & - & 7x_3 & + & 17x_4 & = & -10 \\ & -8x_1 & + & 8x_2 & & & - & 16x_4 & = & -40 \\ & -3x_1 & + & 3x_2 & + & 2x_3 & - & 8x_4 & = & -5 \end{array}$$