Assignment for Section 2.2: The ideal of Elimination

(1) Consider the 2 by 2 system

$$\begin{array}{rrrcr} 2x & - & 4y & = & 6 \\ -x & + & 5y & = & 0 \end{array}$$

   (a) What multiple of the first equation should be subtracted from the second equation?

   (b) After this elimination step, solve the triangular system.

   (c) If the right side changes to $(-6, 0)$, what is the new solution?

(2) Apply forward elimination and back substitution to solve

$$\begin{array}{rrrrrrcr} 2x & - & 3y & & & = & 3 \\ 4x & - & 5y & + & z & = & 7 \\ 2x & - & y & - & 3z & = & 5 \end{array}$$

(3) Find the pivots and the solutions for the system

$$\begin{array}{rrrrrrrrcr} 2x & + & y & & & & & = & 0 \\ x & + & 2y & + & z & & & = & 0 \\ & & y & + & 2z & + & t & = & 0 \\ & & & & z & + & 2t & = & 5 \end{array}$$