Please complete following problems.

1. [FIS P195 2 (a) (c) (e) (g) (i)].
2. Consider the augmented matrix N with missing entries:

$$N = \begin{bmatrix} 1 & 0 & * & * & 1 & 8 \\ * & 0 & * & * & 7 & 3 \\ * & 0 & 0 & * & -5 & -2 \\ * & 0 & 0 & 0 & 0 & * \end{bmatrix}$$

   Suppose that N is in reduced row echelon form and the linear system N corresponds to is consistent.

   i Fill in the missing $*$ entries with suitable numbers;

   ii Circle leading 1's and write down set D and set F;

   iii Parameterize and write down the solution set of the linear system N corresponds to.

3. Determine whether the following sets are linearly dependent or linear independent subsets of vector spaces.

   i. [FIS P40 2. (e) (g)];

   ii. $\{sin(x), cos(x)\} \subset \mathscr{F}(R,R)$;

   iii. $\{sin(x), cos(x), sin(x+416)\} \subset \mathscr{F}(R,R)$.

4. [FIS P42 15] hint: repeatedly apply Thm 1.7 from P39 or from the notes.