Some of the problems in section 1.3 are phrased in a way that might be hard to follow. Here are some clarifications to these questions.

1. Let $\mathbf{s}_1$, $\mathbf{s}_2$, and $\mathbf{s}_3$ be the given vectors (i.e. $s_1 = (1,1,1)$ and so forth).

   a) Compute the linear combination $2\mathbf{s}_1 + 3\mathbf{s}_2 + 4\mathbf{s}_3$. We'll call that combination **b**.

   b) Show how to write **b** as the product of a matrix S with a vector **x**. You must write explicitly what S and **x** are, but don't do the multiplication (yet!).

   c) Compute the matrix product $S\mathbf{x}$ by taking dot products of the **rows** of S with **x**.

2. This question is pretty clear. Find solutions of the two equations. The question about the sums of odd numbers is only dessert.

3. Start by finding a solution of the given equation. You know what B_1, B_2, and B_3 are, and need to find y_1, y_2, and y_3. So write the $y's$ in terms of the B's. Then find a matrix A such that the solution to $S\mathbf{y} = \mathbf{B}$ is exactly $\mathbf{y} = A\mathbf{B}$. Don't sweat the independent/dependent part of the question: just give a one word answer.

4. This one is clear.

5. You need to find two sets of triples (y_1, y_2, y_3) such that $y_1\mathbf{r}_1 + y_2\mathbf{r}_2 + y_3\mathbf{r}_3 = \mathbf{0}$. For both examples, it is not ok to use the obvious example $y_1 = y_2 = y_3 = 0$.

6. For each of these three matrices, there is exactly one value of c that makes the columns linearly dependent. Just find each value of c and show that the columns are dependent. You don't have to show conclusively that your value is the only one.

7. A short answer using your skills from Calculus III is fine.

10. This one is worded clearly.