M341 (56140), Homework #4

Due: 11:00am, Thursday, Sep. 27

Instructions: Questions are from the book “Elementary Linear Algebra, 4th ed.” by Andrilli & Hecker. Please show all your work, not only your final answer, to receive credit. Keep answers organized in the same order the problems have been assigned.

Linear systems and Gaussian elimination (2.1)

p. 96-98, #1(b,c,f), 2, 5, 10

Reduced row echelon form (2.2)

p. 107-110, #1, 4(a,b), 8, 11, 12

In addition:

A) Suppose

\[
A = \begin{bmatrix}
1 & 2 & 2 \\
2 & 4 & 6 \\
3 & 6 & 8 \\
\end{bmatrix}
\text{ and } \quad b = \begin{bmatrix}
3 \\
-4 \\
c \\
\end{bmatrix}
\].

For what values of \( c \in \mathbb{R} \) does the system \( Ax = b \) have solutions (that is, for what values of \( c \) is the system consistent)? Find the complete solution set in this case.