

Name: Solution Math 260 – Quiz # 4

Sr #: _____

Find the value(s) of t in which the following system has no solutions:

$$x_1 + 2x_2 + x_3 = 3$$

$$2x_1 - x_2 - 3x_3 = 5$$

$$4x_1 + 3x_2 - x_3 = t$$

$$\left[\begin{array}{ccc|c} 1 & 2 & 1 & 3 \\ 2 & -1 & -3 & 5 \\ 4 & 3 & -1 & t \end{array} \right]$$

$$\begin{array}{l} -2R_1 + R_2 \\ -4R_1 + R_3 \end{array} \rightarrow \left[\begin{array}{ccc|c} 1 & 2 & 1 & 3 \\ 0 & -5 & -5 & -1 \\ 0 & -5 & -5 & -12+t \end{array} \right]$$

$$\xrightarrow{-R_2 + R_3} \left[\begin{array}{ccc|c} 1 & 2 & 1 & 3 \\ 0 & -5 & -5 & -1 \\ 0 & 0 & 0 & -11+t \end{array} \right]$$

The system has no solution when $-11+t \neq 0$.

i.e. t has any value such that $t \neq 11$.