

Q1 c)
$$\begin{pmatrix} 3 & -1 & 4 \\ 5 & 3 & -1 \\ 2 & 4 & 3 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 21 \\ 15 \\ 10 \end{pmatrix}$$

$$|A| = 3(9+4) - 1(-2-15) + 4(20-6) \quad |A| = 112$$

39 +17 +56

$$A_1 \begin{pmatrix} 21 & -1 & 4 \\ 15 & 3 & -1 \\ 10 & 4 & 3 \end{pmatrix} \quad 21(9+4) - 1(45+10) + 4(60-30)$$

273 -55 +120 $|A_1| = 338$

$$A_2 \begin{pmatrix} 3 & 21 & 4 \\ 5 & 15 & -1 \\ 2 & 10 & 3 \end{pmatrix} \quad 3(45+10) - 21(15+2) + 4(50-30)$$

165 -357 +80 $|A_2| = -112$

$$A_3 \begin{pmatrix} 3 & -1 & 21 \\ 5 & 3 & 15 \\ 2 & 4 & 10 \end{pmatrix} \quad 3(30-60) - 1(50-30) + 21(20-6)$$

-90 -20 +294 $|A_3| = 184$

$$x = \frac{338}{112} = 3 \quad y = \frac{-112}{112} = -1 \quad z = \frac{184}{112} = 1.64$$