## Question

Find all values of $k$ for which the given augmented matrix correspond to a consistent linear system.

$$\begin{bmatrix} 1 & k & : & -4 \\ 4 & 8 & : & 2 \end{bmatrix}$$

Sol.

$$R_2 - 4R_1 \longrightarrow R_2$$

$$\begin{bmatrix} 1 & k & : & -4 \\ 4-4(1) & 8-4k & : & 2-(-4)(4) \end{bmatrix}$$

$$= \begin{bmatrix} 1 & k & : & -4 \\ 4-4 & 8-4k & : & 2+16 \end{bmatrix}$$

$$\begin{bmatrix} 1 & k & : & -4 \\ 0 & 8-4k & : & 18 \end{bmatrix}$$

~~$R_2 \to$~~

~~$C_2 + 8 - 4k$~~

The equation of the Augmented

$$x + ky = -4$$

$$\text{or} \quad +(8-4k)y = 18 \quad \text{---ii)}$$

$$8 - 4k = 0$$

$$4k = 8$$

$$\boxed{k = 2}$$ put the value

eq- no -(ii)

$$0 + (8-(4)(2))y = 18$$

$$0 + (8-8)y = 18$$

$$0 + 0(y) = 18$$

$$0 = 18$$

$\Downarrow$

NO Solution.

So the values of the k is all Real Numbers expect the "2". Because if we put the value of k=2 it give No Solution.