

$$A = \begin{bmatrix} 1 & 2 & 3 & 2 \\ 3 & 0 & 1 & 8 \\ 2 & -2 & -2 & 6 \end{bmatrix}$$

Reduced in the Row echelone form.

$$R_2 - 3R_1, \quad R_3 - 2R_1$$

$$\sim \begin{bmatrix} 1 & 2 & 3 & 2 \\ 0 & -6 & -8 & 2 \\ 0 & -6 & -8 & 2 \end{bmatrix}$$

$$-R_2 + R_3$$

$$\sim \begin{bmatrix} 1 & 2 & 3 & 2 \\ 0 & -6 & -8 & 2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$-\frac{1}{6} R_2$$

$$\sim \begin{bmatrix} 1 & 2 & 3 & 2 \\ 0 & 1 & \frac{4}{3} & -\frac{1}{3} \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$R_1 - 2R_2$$

$$\sim \begin{bmatrix} 1 & 0 & \frac{1}{3} & \frac{8}{3} \\ 0 & 1 & \frac{4}{3} & -\frac{1}{3} \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

Row Space:

$$\{R_1 = (1, 0, \frac{1}{3}, \frac{8}{3}), R_2 = (0, 1, \frac{4}{3}, -\frac{1}{3})\}$$

Ans.