

$$\left[\begin{array}{ccc|c} x & y & z & \\ 1 & 0 & \frac{3}{2} & \frac{3}{2} \\ 0 & 1 & -\frac{1}{3} & \frac{1}{3} \\ 0 & 0 & 0 & 0 \end{array} \right] \begin{array}{l} x + \frac{3}{2}z = \frac{3}{2} \\ y - \frac{1}{3}z = \frac{1}{3} \end{array}$$

$$z = a$$

$$y - \frac{1}{3}a = \frac{1}{3}$$

$$y = \frac{1}{3}a + \frac{1}{3}$$

$$x + \frac{3}{2}a = \frac{3}{2}$$

$$x = -\frac{3}{2}a + \frac{3}{2}$$

$$\left(-\frac{3}{2}a + \frac{3}{2}, \frac{1}{3}a + \frac{1}{3}, a \right)$$

5.2

$$\begin{bmatrix} x & -7 \\ 9 & y \end{bmatrix} = \begin{bmatrix} 4 & -7 \\ 9 & 5 \end{bmatrix}$$

$$x = 4$$

$$y = 5$$

$$A = \begin{bmatrix} 2 & 1 & -3 \\ 4 & -1 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 5 & -2 & 0 \\ 1 & 3 & -4 \end{bmatrix}$$

$$A+B = \begin{bmatrix} 7 & -1 & -3 \\ 5 & 2 & -4 \end{bmatrix}$$

$$A-B = \begin{bmatrix} -3 & 3 & -3 \\ 3 & -4 & 4 \end{bmatrix}$$

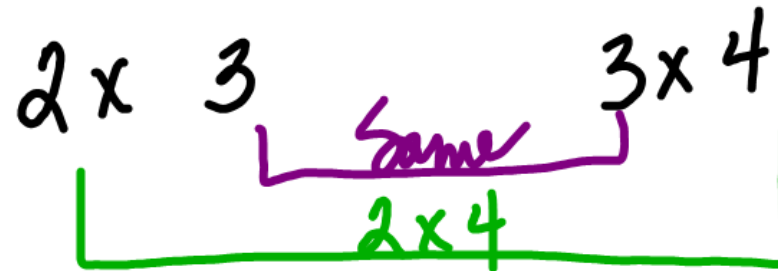
Scalar Multiplication

$$A = \begin{bmatrix} 4 & 1 \\ -2 & 5 \\ 3 & -1 \end{bmatrix}$$

$$2A = \begin{bmatrix} 8 & 2 \\ -4 & 10 \\ 6 & -2 \end{bmatrix}$$

1st Matrix Multiplication 2nd Matrix

Rows x Columns Rows x Columns



No product exists

$$A = \begin{bmatrix} -1 & 3 \\ 4 & -5 \\ 0 & 2 \end{bmatrix} \quad 3 \times 2$$

$$B = \begin{bmatrix} 1 & 2 \\ 0 & 7 \end{bmatrix} \quad 2 \times 2$$

$$3 \times 2$$

$$\begin{array}{l} R_1 \\ R_2 \\ R_3 \end{array} \begin{array}{c} C_1 \\ C_2 \end{array} \begin{bmatrix} -1(1) + 3(0) & -1(2) + 3(7) \\ 4(1) + -5(0) & 4(2) + -5(7) \\ 0(1) + 2(0) & 0(2) + 2(7) \end{bmatrix}$$

$$AB = \begin{bmatrix} -1 & 19 \\ 4 & -27 \\ 0 & 14 \end{bmatrix}$$