

Exercise 1.1

Question#1: Find the order of the following matrices.

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

Rows

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

Columns

Solution	Tips and Tricks
$A = \begin{bmatrix} 2 & 3 \\ -5 & 6 \end{bmatrix}$ $Order(A) = 2 - by - 2$	It has two rows and two columns
$B = \begin{bmatrix} 2 & 0 \\ 3 & 5 \end{bmatrix}$ $Order(B) = 2 - by - 2$	It has two rows and two columns
$C = \begin{bmatrix} 2 & 4 \end{bmatrix}$ $Order(C) = 1 - by - 2$	It has one row and two columns
$D = \begin{bmatrix} 4 \\ 0 \\ 6 \end{bmatrix}$ $Order(D) = 3 - by - 1$	It has three rows and one column
$E = \begin{bmatrix} a & d \\ b & e \\ e & f \end{bmatrix}$ $Order(E) = 3 - by - 2$	It has three rows and two columns
$F = [2]$ $Order(F) = 1 - by - 1$	It has one row and one column
$G = \begin{bmatrix} 2 & 3 & 0 \\ 1 & 2 & 3 \\ 2 & 4 & 5 \end{bmatrix}$ $Order(G) = 3 - by - 3$	It has three rows and three columns
$H = \begin{bmatrix} 2 & 3 & 4 \\ 1 & 0 & 6 \end{bmatrix}$	It has two rows and three columns

$Order(H) = 2 - by - 3$

Question#2: Which of the following matrices are equal.

Solution	Tips and Tricks
$A = [3], C = [5-2]$ $A = C$	$C = [5-2]$ $C = [3]$
$B = [3 \ 5], I = [3 \ 3+2]$ $B = I$	$I = [3 \ 3+2]$ $I = [3 \ 5]$
$E = \begin{bmatrix} 4 & 0 \\ 6 & 2 \end{bmatrix}, H = \begin{bmatrix} 4 & 0 \\ 6 & 2 \end{bmatrix}, J = \begin{bmatrix} 2+2 & 2-2 \\ 2+4 & 2+0 \end{bmatrix}$ $E = H = J$	$J = \begin{bmatrix} 2+2 & 2-2 \\ 2+4 & 2+0 \end{bmatrix}$ $J = \begin{bmatrix} 4 & 0 \\ 6 & 2 \end{bmatrix}$
$F = \begin{bmatrix} 2 \\ 6 \end{bmatrix}, G = \begin{bmatrix} 3-1 \\ 3+3 \end{bmatrix}$ $F = G$	$G = \begin{bmatrix} 3-1 \\ 3+3 \end{bmatrix}$ $G = \begin{bmatrix} 2 \\ 6 \end{bmatrix}$

Question#3: Find the value of a,b,c and d which satisfy the matrix equation.

Solution	Tips and Trick
$\begin{bmatrix} a+c & a+2b \\ c-1 & 4d-6 \end{bmatrix} = \begin{bmatrix} 0 & -7 \\ 3 & 2d \end{bmatrix}$	
$a+c=0$ ___ (I) $a+2b=-7$ ___ (II) $c-1=3$ ___ (III) $4d-6=2d$ ___ (IV)	Comparing the corresponding entries of both matrices.
From equation (III) $c-1=3$ $c=3+1$ $c=4$	
From Equation (IV) $4d-6=2d$ $4d-2d=6$ $2d=6$	Shift $2d$ from right to left and -6 from left to right.

$d = \frac{6}{2}$ $d = 3$	
From equation (I) $a + c = 0$ Put $c = 4$ $a + 4 = 0$ $a = -4$	Shift 4 to right side
From equation (II) $a + 2b = -7$ Put $a = -4$ $-4 + 2b = -7$ $2b = -7 + 4$ $2b = -3$ $b = -\frac{3}{2}$	Shift -4 to right side

