

HARI VIDYA BHAWAN

SESSION- 2020-2021

Subject- MATHEMATICS

Class -12th

Worksheet – 4

- 1) Find x, y, z and w such that $\begin{bmatrix} x-y & 2z+w \\ 2x-y & 2x+w \end{bmatrix} = \begin{bmatrix} 5 & 3 \\ 12 & 15 \end{bmatrix}$
- 2) If $\begin{bmatrix} a+b & 2 \\ 5 & ab \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$, find the values of a and b .
- 3) Find the matrix A such that $2A - 3B + 5C = 0$, where $B = \begin{bmatrix} -2 & 2 & 0 \\ 3 & 1 & 4 \end{bmatrix}$ and $C = \begin{bmatrix} 2 & 0 & -2 \\ 7 & 1 & 6 \end{bmatrix}$.
- 4) Solve the matrix equation $\begin{bmatrix} x^2 \\ y^2 \end{bmatrix} - 3 \begin{bmatrix} x \\ 2y \end{bmatrix} = \begin{bmatrix} -2 \\ 9 \end{bmatrix}$.
- 5) Write down the concepts of matrix multiplication and transpose of a matrix in your notebook.

* Matrix Multiplication

Note 1:- No. of Columns of 1st Matrix is equal to No. of Rows of 2nd Matrix. Then Matrix multiplication is possible otherwise not possible. $n_1 \times n_2 = n_2 \times n_3$
 $n_1 = n_2$

Note 2:- Order of Answer Matrix = No. of rows of 1st Matrix \times No. of Columns of 2nd Matrix = $n_1 \times n_3$

Eg. $A = \begin{bmatrix} 3 & 4 & 5 \end{bmatrix}$ $B = \begin{bmatrix} 9 \\ 8 \\ 7 \end{bmatrix}$

$AB = \begin{bmatrix} 3 & 4 & 5 \end{bmatrix} \begin{bmatrix} 9 \\ 8 \\ 7 \end{bmatrix}$ Equal
 $1 \times 3 = 3 \times 1$ Compatible
 $= \begin{bmatrix} 27+32+35 \end{bmatrix}$ (Rows \times Columns)
 $= \begin{bmatrix} 94 \end{bmatrix}$

Exercise - 3.3

Transpose of a Matrix

Rows \longleftrightarrow Columns
Interchange

Eg. $A = \begin{bmatrix} 3 & 2 \\ 5 & 3 \end{bmatrix}$
 $A' = \begin{bmatrix} 3 & 5 \\ 2 & 3 \end{bmatrix}$

Properties = i) $(A')' = A$
ii) $(A+B)' = A' + B'$
iii) $(cA)' = cA'$
iv) $(AB)' = B'A'$ $[(AB)' \neq A'B']$

Symmetric matrix :- $A' = A$ is a symmetric matrix

$A = \begin{bmatrix} 6 & 7 \\ 7 & 2 \end{bmatrix}$ $[A'+A]$ is a symmetric matrix
 $\frac{1}{2} [A'+A]$ is a symmetric matrix

$A' = \begin{bmatrix} 6 & 7 \\ 7 & 2 \end{bmatrix} = A$

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Skew Symmetric matrix :- $A' = -A$ is a skew symmetric matrix

$[A' - A]$ is a skew symmetric matrix

$\frac{1}{2}[A' - A]$ is a skew symmetric matrix

Eg. $A = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$, $A' = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} = -\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix} = -A$

Sum of symmetric matrix and skew symmetric matrix

Eg. $A = \begin{bmatrix} 3 & 5 \\ 1 & -1 \end{bmatrix}$, $A' = \begin{bmatrix} 3 & 1 \\ 5 & -1 \end{bmatrix}$

$A + A' =$

Let $P = \frac{1}{2}[A + A'] = \begin{bmatrix} 3 & 3 \\ 3 & -1 \end{bmatrix}$

$P' = \begin{bmatrix} 3 & 3 \\ 3 & -1 \end{bmatrix}$

$\therefore P$ is a symmetric matrix

$A - A' = \begin{bmatrix} 0 & 4 \\ -4 & 0 \end{bmatrix}$

Let $Q = \frac{1}{2}[A - A'] = \begin{bmatrix} 0 & 2 \\ -2 & 0 \end{bmatrix}$

$Q' = \begin{bmatrix} 0 & -2 \\ 2 & 0 \end{bmatrix} = -\begin{bmatrix} 0 & 2 \\ -2 & 0 \end{bmatrix} = -Q$

$\therefore Q$ is a skew symmetric matrix

Then, $P + Q = \begin{bmatrix} 3 & 3 \\ 3 & -1 \end{bmatrix} + \begin{bmatrix} 0 & 2 \\ -2 & 0 \end{bmatrix}$

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

proved that

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Session- 2020-2021

Subject- Accountancy (055)

Class -12th

Worksheet-4

Chapter-1(Financial Statement of Not For Profit Organisations)

Multiple choice Questions.

Q.1. The amount of 'Subscription received from member ' by a non profit organisation is known in which of the following ?

- A. Debit side of Income & Expenditure Account
- B. Credit side of Income & Expenditure Account
- C. Liability side of Balance Sheet
- D. Assets side of Balance Sheet

Q.2. Donation Received for special purpose:

- A. Should be credited to Income & Expenditure Account
- B. Should be credited to separated account and shown in Balance Sheet
- C. Should be shown on Assets Side
- D. Should not be recorded at all

Q.3. Subscription received by School for organisation annual function is treated as:

- A. Capital Receipt (i.e., liability)
- B. Revenue Receipts (i.e., income)
- C. Asset
- D. Earned Income

Q.4. Explain and How would a Non Profit Organisation record the following items while preparing income & Expenditure Account and Balance Sheet:

- i. Capital Fund
- ii. Legacy
- iii. Specific Donation
- iv. Life membership fees
- v. Entrance fees
- vi. Subscription
- vii. Endowment Fund
- viii. sale of news papers
- ix. investment purchased
- x. Donation for Building

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SESSION 2020-2021

CLASS - XII

HISTORY

WORKSHEET - 4

Chapter-1 Brick, Beads and Bones.
(Harappan Civilisation)

Read this topic from your book and answer the following questions.

Topic: Tracking social differences

Page no.- 9 and 10

1. How do archaeologist trace Socio-economic differences in Harappan Society.
2. Some graves contain pottery and ornaments..... What does it reflect? (page no. 9- 3RD Paragraph)
3. What do you mean by utilitarian and Luxuries?
4. Make a list of Utilitarian goods and Luxuries goods found at Harappan sites.
5. What do you mean by Hoards?