

Q1 If $\begin{bmatrix} x+y & 2 \\ 5 & xy \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$, then the value of $\left(\frac{24}{x} + \frac{24}{y}\right)$ is :

- (A) 7 (B) 6
(C) 8 (D) 18

Q2 If $\begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix} = \begin{bmatrix} 2a+2 & b+2 \\ 8 & a-8b \end{bmatrix}$, write the value of $a - 2b$.

- (A) 0 (B) 2
(C) -6 (D) 10

Q3 Find values of a and b if $A = B$, where

$$A = \begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix},$$

$$B = \begin{bmatrix} 2a+2 & b^2+2 \\ 8 & b^2-5b \end{bmatrix}$$

- (A) 0, 0 (B) 2, 2
(C) -6, 2 (D) 10, 12

Q4 If $\begin{bmatrix} 2x+y & 4x \\ 5x-7 & 4x \end{bmatrix} = \begin{bmatrix} 7 & 7y-13 \\ y & x+6 \end{bmatrix}$, then the value of $x + y$ is

- (A) $x = 3, y = 1$ (B) $x = 2, y = 3$
(C) $x = 2, y = 4$ (D) $x = 3, y = 3$

Q5 If $2\begin{bmatrix} 3 & 4 \\ 5 & x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$, then find $(x - y)$.

- (A) 6 (B) 8
(C) 10 (D) 12

Q6 If $A = \begin{bmatrix} 1 & 0 & -2 \\ 2 & -3 & 4 \end{bmatrix}$, then the matrix X for which $2X + 3A = 0$ holds true is

(A) $\begin{bmatrix} -\frac{3}{2} & 0 & -3 \\ -3 & -\frac{9}{2} & -6 \end{bmatrix}$

(B) $\begin{bmatrix} \frac{3}{2} & 0 & -3 \\ 3 & -\frac{9}{2} & -6 \end{bmatrix}$

(C) $\begin{bmatrix} \frac{3}{2} & 0 & 3 \\ 3 & \frac{9}{2} & 6 \end{bmatrix}$

(D) $\begin{bmatrix} -\frac{3}{2} & 0 & 3 \\ -3 & \frac{9}{2} & -6 \end{bmatrix}$

Q7 If $X = \begin{bmatrix} 1 & a \\ 0 & 1 \end{bmatrix}$ and $3X - \begin{bmatrix} 2 & 3 \\ 0 & 2 \end{bmatrix} = \begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix}$ then a is equal to -

- (A) 1 (B) 2
(C) 0 (D) -2

Q8 If $\begin{bmatrix} x \cdot y & 4 \\ z+6 & x+y \end{bmatrix} = \begin{bmatrix} 8 & w \\ 0 & 6 \end{bmatrix}$, write the value of $(x + y + z)$.

- (A) 6 (B) 8
(C) 10 (D) 0

Q9 The elements a_{ij} of a 3×3 matrix are given by $a_{ij} = \frac{1}{2}| -3i + j |$. Write the value of element a_{32} .

- (A) $\frac{2}{7}$ (B) $\frac{7}{2}$
(C) $\frac{11}{2}$ (D) $\frac{9}{2}$

Q10 If $A = \begin{bmatrix} -1 & 2 \\ 3 & -4 \end{bmatrix}$ then element a_{21} of A^2 is -

(A) 22 (B) -15
(C) -10 (D) 7



Answer Key

Q1 D
Q2 A
Q3 B
Q4 B
Q5 C

Q6 D
Q7 B
Q8 D
Q9 B
Q10 B



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Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

$$\text{Given } \begin{bmatrix} x+y & 2 \\ 5 & xy \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$$

then $x + y = 6$, $xy = 8$ By compare

$x = 4$, $y = 2$ or $x = 2$, $y = 4$

$$\text{then } \frac{24}{x} + \frac{24}{y} = \frac{24}{4} + \frac{24}{2} = 6 + 12 = 18$$

Video Solution:



Q2 Text Solution:

$$\text{Given } \begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix} = \begin{bmatrix} 2a+2 & b+2 \\ 8 & 9-8b \end{bmatrix}$$

By Comparing

$$a + 4 = 2a + 2 \text{ ® } a = 2$$

$$3b = b + 2 \text{ ® } b = 1$$

then the value of $a - 2b$ is zero.

Video Solution:



Q3 Text Solution:

$$\text{Given } A = \begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix} \text{ and}$$

$$B = \begin{bmatrix} 2a+2 & b^2+2 \\ 8 & b^2-5b \end{bmatrix}$$

$A = B$ then

$$a + 4 = 2a + 2$$

$$2 = a$$

$$b^2 + 2 = 3b$$

$$b^2 - 3b + 2 = 0$$

$$(b - 2)(b - 1) = 0$$

$$b = 2 \text{ or } b = 1$$

Again

$$b^2 - 5b = -6$$

$$b^2 - 5b + 6 = 0$$

$$(b - 2)(b - 3) = 0$$

$$b = 2 \text{ or } b = 3$$

So $a = 2$ and $b = 2$

Video Solution:



Q4 Text Solution:

$$\text{Given } \begin{bmatrix} 2x+y & 4x \\ 5x-7 & 4x \end{bmatrix} = \begin{bmatrix} 7 & 7y-13 \\ y & x+6 \end{bmatrix}$$

then

$$4x = x + 6,$$

$$3x = 6$$

$$x = 2$$

$$2x + y = 7$$

$$2(2) + y = 7$$

$$y = 3$$

Video Solution:



Q5 Text Solution:

$$\text{Given, } 2 \begin{bmatrix} 3 & 4 \\ 5 & x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 6 & 8 \\ 10 & 2x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 7 & 8+y \\ 10 & 2x+1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$$



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By Comparing

$$8 + y = 0 \text{ then } y = -8$$

$$\text{and } 2x + 1 = 5 \text{ then } x = 2$$

$$\text{then } x - y = 2 - (-8) \Rightarrow 10$$

Video Solution:



Q6 Text Solution:

$$\text{If } A = \begin{bmatrix} 1 & 0 & -2 \\ 2 & -3 & 4 \end{bmatrix},$$

$$2X + 3A = 0$$

$$2X = -3A$$

$$X = -\frac{3}{2}A$$

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

$$X = \begin{bmatrix} -\frac{3}{2} & 0 & 3 \\ -3 & \frac{9}{2} & -6 \end{bmatrix}$$

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Q7 Text Solution:

$$3X = \begin{bmatrix} 3 & 3a \\ 0 & 3 \end{bmatrix}$$

$$\Rightarrow \text{L.H.S.} = \begin{bmatrix} 3-2 & 3a-3 \\ 0-0 & 3-2 \end{bmatrix}$$

$$= \begin{bmatrix} 1 & 3a-3 \\ 0 & 1 \end{bmatrix}$$

Now by equality of two matrices, we have $3a -$

$$3 = 3$$

$$\Rightarrow a = 2$$

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Q8 Text Solution:

Given

$$\begin{bmatrix} x \cdot y & 4 \\ z + 6 & x + y \end{bmatrix} = \begin{bmatrix} 8 & w \\ 0 & 6 \end{bmatrix}$$

By Compare

$$x \cdot y = 8 \text{ then } x = 4 \text{ or } 2$$

$$x + y = 6 \quad y = 2 \text{ or } 4$$

and

$$z + 6 = 0$$

$$z = -6$$

$$x + y + z$$

$$4 + 2 + (-6) = 0$$

Video Solution:



Q9 Text Solution:

Given

$$a_{ij} = \frac{1}{2} |-3i + j|$$

$$a_{32} = \frac{1}{2} |-3(3) + 2|$$

$$a_{32} = \frac{1}{2} |-7| \Rightarrow \frac{7}{2}$$

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Q10 Text Solution:

The element a_{21} is product of second row of A to the first column of A



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$$\therefore a_{21} = \begin{bmatrix} 3 & -4 \end{bmatrix} \begin{bmatrix} -1 \\ 3 \end{bmatrix} = -3 - 12 = -15$$

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