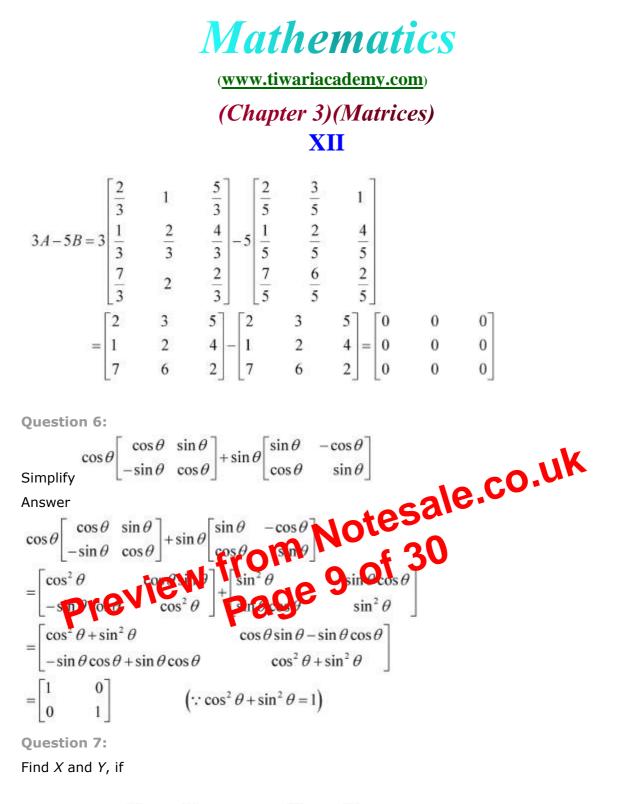


Answer





(i) 
$$X + Y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}_{and} X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$
  
(ii)  $2X + 3Y = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}_{and} 3X + 2Y = \begin{bmatrix} 2 & -2 \\ -1 & 5 \end{bmatrix}$ 

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## **Mathematics**

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# (Chapter 3)(Matrices)

 $\Rightarrow x = 3$ Now, 3x + y = 5 $\Rightarrow y = 5 - 3x$  $\Rightarrow y = 5 - 9 = -4$  $\therefore x = 3 \text{ and } y = -4$ 

**Question 12:** 

$$3\begin{bmatrix} x & y \\ z & w \end{bmatrix} = \begin{bmatrix} x & 6 \\ -1 & 2w \end{bmatrix} + \begin{bmatrix} 4 & x+y \\ z+w & 3 \end{bmatrix}, \text{ find the values of } x, y, z \text{ and } w.$$

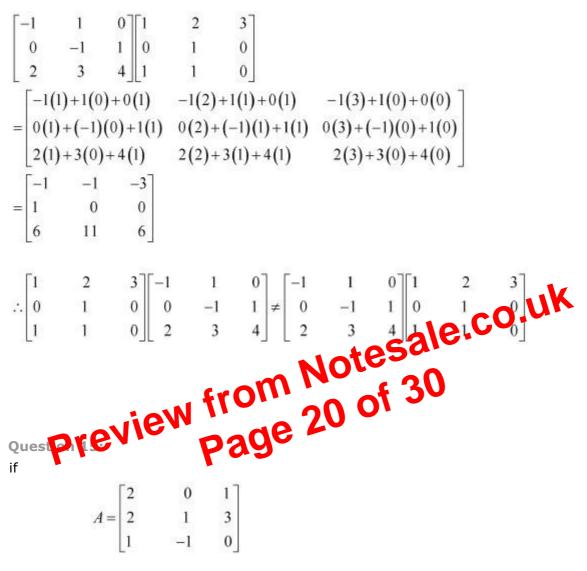
Answer

 $\begin{bmatrix} y \\ w \end{bmatrix} = \begin{bmatrix} x & 6 \\ -1 & 2w \end{bmatrix} + \begin{bmatrix} 4 & x+y \\ z+w & 3 \end{bmatrix}$  $3 \begin{bmatrix} x \\ z \end{bmatrix}$  $\begin{bmatrix} 5z & 3w \end{bmatrix}^{=} \begin{bmatrix} -1+z+w & 6+x+y \\ 2w+3 \end{bmatrix}$ Comparing the corresponding elements of these two matrices the get: 3x = x+4 $\Rightarrow 2x = 4$  $\Rightarrow x = 3 \quad ev = 0$ 3y = 6 + x + y $\Rightarrow 2y = 6 + x = 6 + 2 = 8$  $\Rightarrow y = 4$ 3w = 2w + 3 $\Rightarrow w = 3$ 3z = -1 + z + w $\Rightarrow 2z = -1 + w = -1 + 3 = 2$  $\Rightarrow z = 1$  $\therefore x = 2, y = 4, z = 1, and w = 3$ 24 www.tiwariacademy.com Free web support in Education

## **Mathematics**

(www.tiwariacademy.com)

### (Chapter 3)(Matrices) XII



Find

 $A^2 - 5A + 6I$ 

Answer

We have  $A^2 = A \times A$ 





XII

### **Ouestion 20:**

The bookshop of a particular school has 10 dozen chemistry books, 8 dozen physics books, 10 dozen economics books. Their selling prices are Rs 80, Rs 60 and Rs 40 each respectively. Find the total amount the bookshop will receive from selling all the books using matrix algebra.

### Answer

The bookshop has 10 dozen chemistry books, 8 dozen physics books, and 10 dozen economics books.

The selling prices of a chemistry book, a physics book, and an economics book are respectively given as Rs 80, Rs 60, and Rs 40.

=12(800+480+400)

$$=12(1680)$$

= 20160

Thus, the bookshop will receive Rs 20160 from the sale of all these books.

**Question 21:** 

Assume X, Y, Z, W and P are matrices of order  $2 \times n, 3 \times k, 2 \times p, n \times 3$ , and  $p \times k$ respectively. The restriction on *n*, *k* and *p* so that PY + WY will be defined are:

**A.** *k* = 3, *p* = *n* **B.** k is arbitrary, p = 2

**C.** *p* is arbitrary, k = 3

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