

## Matrices Worksheet-4 Mathematics

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### Question

Find the Matrix C, such that A+B+C is zero matrix

$$A = \begin{bmatrix} 2 & 0 & 1 \\ 3 & -1 & 0 \end{bmatrix}$$

$$B = \begin{bmatrix} 2 & 1 & -1 \\ 0 & 2 & 1 \end{bmatrix}$$

### Answer

$$C = \begin{bmatrix} -4 & -1 & 0 \\ -3 & -1 & -1 \end{bmatrix}$$

### Question

Find the value p and q from the below equation

$$2 \begin{bmatrix} p & 5 \\ 17 & q-3 \end{bmatrix} + \begin{bmatrix} 3 & 4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 14 \\ 15 & 14 \end{bmatrix}$$

### Answer

$$p = 2, q = 9$$

### Question

Find the transpose of each of the following matrices:

$$A = \begin{bmatrix} 2 & 0 & 1 \\ 3 & -1 & 0 \end{bmatrix}$$

$$B = \begin{bmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$$

### Question

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Find the value of p and q  
When

$$M = \begin{bmatrix} 3 & 1 \\ 7 & 5 \end{bmatrix}$$

Such that

$$M^2 + pI = qM$$

**Answer**

$$p=q=8$$

**Question**

if

$$F(x) = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$$

Then show that

$$F(A) F(B) = F(A+B)$$

**Question**

If

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

Find  $A^2 + 2A + 7I$ .

**Answer**

$$\begin{bmatrix} 18 & 8 \\ 16 & 18 \end{bmatrix}$$

**Question**

$$A = \begin{bmatrix} 1 & 2 & -1 \\ 2 & 4 & 17 \end{bmatrix}$$

$$B = \begin{bmatrix} 1 & 11 \\ 2 & 4 \\ -1 & 3 \end{bmatrix}$$

$$C = \begin{bmatrix} 1 & 34 \\ -1 & 1 \end{bmatrix}$$

Three Matrices A, B and C are defined above, Find the following

- a) AB
- b) AB+C
- c) BC
- d) BA+C
- e) A<sup>2</sup>
- f) CA
- g) C<sup>2</sup>
- h) ABC