MATHS

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MATRICES

Example

1. Find the value of a,b and c from the following equations,

$$\begin{bmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$$

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2. Simplify

$$\cos x \begin{bmatrix} \cos x & \sin x \\ -\sin x & \cos x \end{bmatrix} + \sin x \begin{bmatrix} \sin x & -\cos x \\ \cos x & \sin x \end{bmatrix}$$

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3. Solve the equation for x,y,z and t, if

$$2\begin{bmatrix} x & z \\ y & t \end{bmatrix} + 3\begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix} = 3\begin{bmatrix} 3 & 5 \\ 4 & 6 \end{bmatrix}$$

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4. Find $A^2 - 5A + 6I$ if $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$

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5. If $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$ find k so that $A^2 = kA - 2I$

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6. Express $A = \begin{bmatrix} -1 & 2 & 3 \\ 5 & 7 & 9 \\ -2 & 1 & 1 \end{bmatrix}$ as the sum of a symmetric and skew symmetric matrix.

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7. Find the inverse of the following using elementary transformations. $A = \begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix}$

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8. Find the inverse of the following using elementary transformations. $A = \begin{bmatrix} 2 & 1 \\ 7 & 4 \end{bmatrix}$

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9. Find the inverse of the following using elementary transformations. $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$

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10. Find the inverse of the following using elementary transformations. $A = \begin{bmatrix} 3 & 1 \\ 5 & 2 \end{bmatrix}$

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11. Find the inverse of the matrix $A = \begin{bmatrix} 2 & 3 \\ -1 & 5 \end{bmatrix}$ using row transformation.

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12. $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \\ 2 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{bmatrix}$

Find AB

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13. $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \\ 2 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{bmatrix}$

If C is the matrix obtained from A by the transformation $R_1 \to 2R_1$, find CB

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14. Construct a 3×4 matrix whose elements are given by

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

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15. construct a 3×4 matrix whose elements are given by

$$a_{ij} = 2i + j$$

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16. Express the following matrices as the sum of a Symmetric and a Skew Symmetric matrix.

$$\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$$

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17. Express the following matrices as the sum of a Symmetric and a Skew Symmetric matrix.

$$\begin{bmatrix} 3 & 3 & -1 \\ -2 & -2 & 1 \\ -4 & -5 & 2 \end{bmatrix}$$

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18. IF $A = \begin{bmatrix} 2 & 4 & 3 \\ 1 & 0 & 6 \\ 0 & -2 & -3 \end{bmatrix}$,

Find $3A$.

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19. IF $A = \begin{bmatrix} 2 & 4 & 3 \\ 1 & 0 & 6 \\ 0 & -2 & -3 \end{bmatrix}$,

Find A^T

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20. IF $A = \begin{bmatrix} 2 & 4 & 3 \\ 1 & 0 & 6 \\ 0 & -2 & -3 \end{bmatrix}$,

Evalute $A + A^T$, is it symmetric ? Justify your answer.

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21. Consider the following statement :

$P(n) : A^n = \begin{bmatrix} 1+2n & -4n \\ n & 1-2n \end{bmatrix}$ for all $n \in N$

Write $P(1)$.

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22. Consider the following statement :

$P(n): A^n = \begin{bmatrix} 1+2n & -4n \\ n & 1-2n \end{bmatrix}$ for all $n \in N$

If $P(k)$ is true, then show that $P(k+1)$ is also true.

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23. Find the matrices A and B if

$2A + 3B = \begin{bmatrix} 1 & 2 & -1 \\ 0 & 2 & 1 \\ 1 & 2 & 4 \end{bmatrix}$ and

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

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24. Construct a 3×3 matrix $A = [a_{ij}]$ where

$a_{ij} = 2(i - j)$

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25. Construct a 3×3 matrix $A = [a_{ij}]$ where

$a_{ij} = 2(i - j)$

Show that the matrix A is a skew symmetrics.

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26. Consider the following statement

$$P(n): A^n = \begin{bmatrix} \cos n\theta & \sin n\theta \\ -\sin n\theta & \cos n\theta \end{bmatrix} \quad \text{for} \quad \text{all}$$

$n \in N$

Write $P(1)$.

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27. Consider the following statement

$$P(n): A^n = \begin{bmatrix} \cos n\theta & \sin n\theta \\ -\sin n\theta & \cos n\theta \end{bmatrix} \quad \text{for} \quad \text{all}$$

$n \in N$

If $P(k)$ is true then show that $P(k+1)$ is true

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28. $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$, then

Find $4A$ and A^2

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29. $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$, then show that $A^2 - 4A = 5I_3$

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30. Let $A = \begin{bmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 5 & 0 \end{bmatrix}$

Find A^T and B^T

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31. Let $A = \begin{bmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 5 & 0 \end{bmatrix}$

Find AB

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32. Let $A = \begin{bmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 5 & 0 \end{bmatrix}$

Show that $(AB)^T = B^T A^T$

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33. $A = \begin{bmatrix} 1 & -3 & 1 \\ 2 & 0 & 4 \\ 1 & 2 & -2 \end{bmatrix}$ Express A as the sum of a symmetric and skew symmetric matrix.

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34. Consider a 2×2 matrix $A = [a_{ij}]$, where $a_{ij} = \frac{(i+j)^2}{2}$.

Write the transpose of A .

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35. Consider a 2×2 matrix $A = [a_{ij}]$,

where $a_{ij} = \dfrac{(i+j)^2}{2}$.

Show that A is a symmetric.

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36. $A = \begin{bmatrix} 6 & 5 \\ 7 & 6 \end{bmatrix}$ is a matrix

What is the order of A .

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37. $A = \begin{bmatrix} 6 & 5 \\ 7 & 6 \end{bmatrix}$ is a matrix

Find A^2 and $12A$.

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38. $A = \begin{bmatrix} 6 & 5 \\ 7 & 6 \end{bmatrix}$ is a matrix

$f(x) = x^2 - 12x + 1$, find $f(A)$.

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39. Let $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ -2 & 5 \end{bmatrix}$, $C = \begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$

Find each of the folowing

$A + B , A - B$

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40. Let $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ -2 & 5 \end{bmatrix}$, $C = \begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$

Find each of the folowing

$3A - C$

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41. Let $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ -2 & 5 \end{bmatrix}$, $C = \begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$

Find each of the folowing

AB

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42. Let $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ -2 & 5 \end{bmatrix}$, $C = \begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$

Find each of the folowing

BA

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43. Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$, $C = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$

Find $A + B$ and $A - B$

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44. Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$, $C = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$

Show that $(A + B) + C = A + (B + C)$

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45. Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$, $C = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$

Find AB and BA

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46. $A = \begin{bmatrix} -1 & 0 & 2 \\ 4 & 0 & -3 \end{bmatrix}, B = \begin{bmatrix} 0 & 2 \\ -1 & 3 \\ 0 & 4 \end{bmatrix}$

What is the order of matrix AB ?

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47. $A = \begin{bmatrix} -1 & 0 & 2 \\ 4 & 0 & -3 \end{bmatrix}, B = \begin{bmatrix} 0 & 2 \\ -1 & 3 \\ 0 & 4 \end{bmatrix}$

Find A^T , B^T

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48. $A = \begin{bmatrix} -1 & 0 & 2 \\ 4 & 0 & -3 \end{bmatrix}, B = \begin{bmatrix} 0 & 2 \\ -1 & 3 \\ 0 & 4 \end{bmatrix}$

Verify $(AB)^T = B^T A^T$

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49. Let $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 1 & -1 \end{bmatrix} B = \begin{bmatrix} 2 & 3 \\ 5 & 4 \\ 1 & 6 \end{bmatrix}$

Find AB.

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50. Let $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 1 & -1 \end{bmatrix}$ $B = \begin{bmatrix} 2 & 3 \\ 5 & 4 \\ 1 & 6 \end{bmatrix}$

Find A^T , B^T & $(AB)^T$

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51. Let $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 1 & -1 \end{bmatrix}$ $B = \begin{bmatrix} 2 & 3 \\ 5 & 4 \\ 1 & 6 \end{bmatrix}$

Verify that $(AB)^T = B^T A^T$

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52. If $A = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 3 & 6 \end{bmatrix}$

Find A^T , B^T

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53. If $A = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 3 & 6 \end{bmatrix}$

Find $(AB)^T$

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54. If $A = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 3 & 6 \end{bmatrix}$

$(AB)^T = B^T A^T$

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55. Let $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$

Find A^2

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56. Let $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$

Show that $A^2 - 5A + 7I = 0$

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57. Let $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$

find A^{-1}

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58. Let $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$

Solve the following equation using matrix :

$3x + y = 1, -x + 2y = 2.$

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59. $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$

Show that $A^3 - 23A - 40I = 0$

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60. $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$

A^{-1}

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61. A is a third order square matrix and

$$a_{ij} = \begin{cases} -i + 2j & \text{if } i = j \\ i \times j & \text{if } i \neq j \end{cases}$$

Construct the matrix A .

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62. A is a third order square matrix and

$$a_{ij} = \begin{cases} -i + 2j & \text{if } i = j \\ i \times j & \text{if } i \neq j \end{cases}$$ and

$$B = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 1 & 5 \\ 1 & 5 & 2 \end{bmatrix}$$

Interpret the matrix A .

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63. A is a third order square matrix and

$$a_{ij} = \begin{cases} -i + 2j & \text{if } i = j \\ i \times j & \text{if } i \neq j \end{cases}$$ and

$$B = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 1 & 5 \\ 1 & 5 & 2 \end{bmatrix}$$

Interpret the matrix $AB - BA$.

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64. Find X and Y if

$$X + Y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix} \text{ and } X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

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65. Find X and Y if

$$2X + 3Y = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix} \quad \text{and}$$

$$3X + 2Y = \begin{bmatrix} -2 & 2 \\ -1 & 5 \end{bmatrix}$$

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66. Find X if

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

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67. Given that $A + B = \begin{bmatrix} 2 & 5 \\ 7 & 8 \end{bmatrix}$ and $A - B = \begin{bmatrix} 6 & 8 \\ 4 & 3 \end{bmatrix}$

Find $2A$.

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68. Given that $A + B = \begin{bmatrix} 2 & 5 \\ 7 & 8 \end{bmatrix}$ and $A - B = \begin{bmatrix} 6 & 8 \\ 4 & 3 \end{bmatrix}$

Find $A^2 - B^2$.

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69. Given that $A+B=\begin{bmatrix}2 & 5\\ 7 & 8\end{bmatrix}$ and $A-B=\begin{bmatrix}6 & 8\\ 4 & 3\end{bmatrix}$ find $(A+B)(A-B)$

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70. Consider

A=$\begin{bmatrix}1 & x & 1\end{bmatrix}, B=\begin{bmatrix}1 & 3 & 2\\ 2 & 5 & 1\\ 15 & 3 & 2\end{bmatrix}, C=\begin{bmatrix}1\\ 2\\ x\end{bmatrix}$

Find x if ABC=0.

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71. Consider

$$A=\begin{bmatrix}1 & x & 1\end{bmatrix}, B=\begin{bmatrix}1 & 3 & 2\\ 2 & 5 & 1\\ 15 & 3 & 2\end{bmatrix}, C=\begin{bmatrix}1\\ 2\\ x\end{bmatrix}$$

Find x if ABC=0.

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72. Write A as the sum of a symmetric and a skew symmetric matrix.

$$A=\begin{bmatrix}1 & 4 & -1\\ 2 & 5 & 4\\ -1 & -6 & 3\end{bmatrix}$$

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73. Consider the matrix

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

Find $A + B$

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74. Consider the matrix

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

Find $(A + B)(A - B)$

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75. Given $P = \begin{bmatrix} 2 & -3 \\ -1 & 2 \end{bmatrix}$. Find the inverse of P by elementary row operation.

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76. Let $A = \begin{bmatrix} 3 & 6 & 5 \\ 6 & 7 & 8 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 2 & -3 \\ 4 & 5 & 6 \end{bmatrix}$

Find $2A$

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77. Let $A = \begin{bmatrix} 3 & 6 & 5 \\ 6 & 7 & 8 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 2 & -3 \\ 4 & 5 & 6 \end{bmatrix}$

Find the matrix B such that $2A + B = 3C$

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78. Let $A = \begin{bmatrix} 2 & 4 \\ -1 & 1 \end{bmatrix}$

Apply elementary transformation $R_1 \to \frac{R_1}{2}$

in the matrix A.

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79. Let $A = \begin{bmatrix} 2 & 4 \\ -1 & 1 \end{bmatrix}$

Find the inverse of A by elementary transformation.

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80. Consider the matrix $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$

Find A^2

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81. Consider the matrix $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$

Find k so that $A^2 = kA - 7I$

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82. Consider a 2×2 matrix

$A = [a_{ij}]$ where $a_{ij} = |2i - 3j|$

Write A

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83. Consider a 2×2 matrix

$A = [a_{ij}]$ where $a_{ij} = |2i - 3j|$

Find $A + A^T$

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84. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ then

Find A^2

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85. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ then

Hence show that $A^2 - 5A + 7I = 0$

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86. If a matrix $A = \begin{bmatrix} 3x & x \\ -x & 2x \end{bmatrix}$ is a solution of the equation $x^2 - 5x + 7 = 0$, find any one value of x.

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87. Consider the matrices

$$A = \begin{bmatrix} 1 & -2 \\ -1 & 3 \end{bmatrix} \text{ and } B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

If $AB = \begin{bmatrix} 2 & 9 \\ 5 & 6 \end{bmatrix}$, find the values of a,b,c,d

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88. Consider a 2×2 matrix $A = [a_{ij}]$, where

$$A_{ij} = \frac{(i+2j)^2}{2}$$

Write A

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89. Consider a 2×2 matrix $A = [a_{ij}]$, where $a_{ij} = \frac{(i+2j)^2}{2}$

Find $A + A^T$

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90. If $X + Y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}$ and $X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$ then

Find X and Y.

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91. If $X+Y=\begin{bmatrix}7 & 0\\ 2 & 5\end{bmatrix}$ and $X-Y=\begin{bmatrix}3 & 0\\ 0 & 3\end{bmatrix}$ then

Find $2X+Y$.

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92. If A,B are symmetric matrices of same order then $AB-BA$ is always a .....

A. Skew-Symmetric matrix

B. Symmetric matrix

C. Identity matrix

D. Zero matrix

Answer:

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93. For the matrix $A = \begin{bmatrix} 2 & 4 \\ 5 & 6 \end{bmatrix}$, verify that $A + A^T$ is a symmetric matrix.

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94. Consider the matrix $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$

Find A^2

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95. Consider the matrix $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$

find k so that $A^2 = kA - 2I$

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96. find the value of x and y from the equations

$$a\begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix}$$

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97. Given $A = \begin{bmatrix} 1 & 2 \\ 3 & -1 \\ 4 & 2 \end{bmatrix}$,

$B = \begin{bmatrix} -1 & 4 & -5 \\ 2 & 1 & 0 \end{bmatrix}$

Show that $AB \neq BA$

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98. Find a,b matrix $\begin{bmatrix} 0 & 3 & a \\ b & 0 & -2 \\ 5 & 2 & 0 \end{bmatrix}$ is skew symmetric matrix .

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99. Express $A = \begin{bmatrix} 7 & 3 & -5 \\ 0 & 1 & 5 \\ -2 & 7 & 3 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrix .

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100. Consider the matrices

$$A = \begin{bmatrix} 2 & -6 \\ 1 & 2 \end{bmatrix} \text{ and } A + 3B = \begin{bmatrix} 5 & -3 \\ -2 & -1 \end{bmatrix}$$

Find matrix B

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101. Consider the matrices

$$A = \begin{bmatrix} 2 & -6 \\ 1 & 2 \end{bmatrix} \text{ and } A + 3B = \begin{bmatrix} 5 & -3 \\ -2 & -1 \end{bmatrix}$$

Find matrix AB.

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102. Consider the matrices

$$A = \begin{bmatrix} 2 & -6 \\ 1 & 2 \end{bmatrix} \text{ and } A + 3B = \begin{bmatrix} 5 & -3 \\ -2 & -1 \end{bmatrix}$$

Find the transpose of B.

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103. The value of k such that matrix $\begin{bmatrix} 1 & k \\ -k & 1 \end{bmatrix}$ is symmetric if

A. 0

B. 1

C. -1

D. 2

Answer:

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104. If $A = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ then prove that $A^2 = \begin{bmatrix} \cos 2\theta & \sin 2\theta \\ -\sin 2\theta & \cos 2\theta \end{bmatrix}$

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105. If $A = \begin{bmatrix} 1 & 3 \\ 4 & 1 \end{bmatrix}$, then find $\left|3A^T\right|$

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106. Let A be a matrix of order 3×3 whose elements are given by $a_{ij} = 2i - j$

obtain the matrix A.

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107. Let A be a matrix of order 3×3 whose elements are given by $a_{ij} = 2i - j$

Find A^T Also express A as the sum of symmetric and skew symmetric matrix.

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108. Consider a 2×2 matrix $A = [a_{ij}]$ with $a_{ij} = 2^i + j$

Construct A.

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109. Consider a 2×2 matrix $A = \left[a_{ij}\right]$ with

$a_{ij} = 2^i + j$

Find $A + A^T$, $A - A^T$

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110. Consider a 2×2 matrix $A = \left[a_{ij}\right]$ with

$a_{ij} = 2^i + j$

Express A as sum of a symmetric and skew-symmetric matrix.

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111. $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}, B = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix},$

then $BA = \ldots\ldots\ldots\ldots\ldots$

A. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

B. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

C. $\begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$

D. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

Answer:

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112. Write $A = \begin{bmatrix} 3 & 5 \\ 1 & -1 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrix.

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113. Find the inverse of $A = \begin{bmatrix} 2 & -6 \\ 1 & -2 \end{bmatrix}$

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114. If the matrix A is both symmetric and skew-symmetric , then A is a

A. diagonal matrix

B. zero matrix

C. square matrix

D. scalar matrix

Answer:

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115. If $A = \begin{bmatrix} 1 & 3 \\ -2 & 4 \end{bmatrix}$, then show that, $A^2 - 5A + 10I = 0$

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116. If $A = \begin{bmatrix} 1 & 3 \\ -2 & 4 \end{bmatrix}$

Hence find A^{-1}

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117. The number of all possible 2×2 matrices with entries 0 or 1 is

A. 8

B. 9

C. 16

D. 25

Answer:

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118. If the area of a triangle whose vertices are (k,0), (5,0), (0,1) is 10 square units then find k .

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119. Using elementary transformation find the inverse of the matrix $\begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$

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