

**Class: 10th****Sub: Math's****MM: 50****Q 1. Fill in the blanks.****/5**

- i. If rows (w) = columns (m) then the matrix is called matrix.
- ii. For matrix A, $(A^{-1})^{-1} = \dots\dots\dots$
- iii. $2 \begin{bmatrix} x \\ 3 \\ 4 \end{bmatrix} + 3 \begin{bmatrix} -1 \\ y \\ 0 \end{bmatrix} = 4 \begin{bmatrix} 0 \\ 4 \\ z \end{bmatrix}$, the value of x, y and z is.....
- iv. The S.O.R of $x^2 - 2x - 15 = 0$ is:
- v. If $1/\alpha$, $1/\beta$ are the roots of $ax^2 + bx + c = 0$, then $\alpha + \beta = \dots\dots\dots$

Q 2. Find the inverse of matrix $\begin{bmatrix} 1 & 0 & 1 \\ -4 & 1 & -1 \\ 6 & -2 & 1 \end{bmatrix}$ **by adjoint method.**

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Q 3. For what value of x, the matrix $\begin{bmatrix} 5-x & x+1 \\ 2 & 4 \end{bmatrix}$ **is singular?**

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Q 4. Show that: $(1+\omega)(1+\omega^2)(1+\omega^4)(1+\omega^8) = (\omega+\omega^2)^4$

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Q5. For what value of p and q the roots of quadratic equation $x^2 + (2p-4)x - (3q+5) = 0$ vanish?

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Q 6. If α , β are the roots of the equation $px^2 + qx + r = 0$, find the value of $\sqrt{\frac{\alpha}{\beta}} + \sqrt{\frac{\beta}{\alpha}}$

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Q 7. Find the equation whose roots exceed by 2 the root of $px^2 + qx + r = 0$

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Q 8. Find the value of a and b, if two roots of the equation $x^4 - ax^2 + bx + 252 = 0$ are 6 and -2, also find its remaining two roots.

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Q 9. Let's consider an isosceles triangle. The two equal sides have a length of a, and the base has a length of b. The perimeter is 39cm, and the altitude to the unequal side is 10cm. Determine the lengths of the three sides.

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Q10. Solve by crammer's rule

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a. $2x + 5y = 27$

$7x + y = 12$