**JNV**

**MODEL QUESTIONS**

**MATHEMATICS: 3 PAIR OF LINEAR EQUATION**

**Class : X**

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| 1 | Find the value of k so that the following system of equations has no solution: 3x – y – 5 = 0, 6x – 2y + k = 0 |  |
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|  | ANS:     Here a1 = 3, b1 = –1, c1 = –5, and a2 = 6, b2 = –2, c2 = k. For no solution,C:\fake\image1.png |  |
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| 2 | For which values of p, does the pair of equations given below has unique solution? 4x + py + 8 = 0 and 2x + 2y + 2 = 0 |  |
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|  | ANS:     For unique solution, C:\fake\image2.pngC:\fake\image3.pngp ≠ 4 Therefore, for all values of p other than 4, the given pair of equations has unique solution. |  |
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| 3 | Determine k for which the system of equations has infinite solutions: 4x + y = 3 and 8x + 2y = 5k |  |
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|  | ANS:     For infinite many solutions C:\fake\image4.pngC:\fake\image5.png  C:\fake\image6.png5k = 6 C:\fake\image7.pngk = C:\fake\image8.png |  |
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| 4 | Solve the following pair of linear equations by substitution method y – 5 = 0; 3x + 4y – 20 = 0 |  |
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|  | ANS:     Given equations are y – 5 = 0 ...(i) and 3x + 4y – 20 = 0 ...(ii) From equation (i), we get y – 5 = 0  C:\fake\image9.png  y = 5 Substituting y = 5 in equation (ii), we get 3x + 4 × 5 – 20 = 0 C:\fake\image10.png  3x + 20 – 20 = 0  C:\fake\image11.png  3x = 0  C:\fake\image12.png  x = 0 C:\fake\image13.png  x = 0, y = 5 |  |
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| 5 | Solve for x and y by the method of elimination: 2x – y = 5; 3x – 5y = 4 |  |
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|  | ANS:     Here given equations are 2x – y = 5 ...(i) 3x – 5y = 4 ...(ii) For making coefficient of x equal in both the equations multiplying equation (i) with 3 we get 3 × (2x – y = 5) C:\fake\image14.png  6x – 3y = 15 ...(iii) Multiplying equation (ii) with 2 we get 2 × (3x – 5y = 4) C:\fake\image15.png  6x – 10y = 8 ...(iv) Subtracting equation (iv) from (iii) we get C:\fake\image16.png C:\fake\image17.png  y = 1 when y = 1, equation (i) becomes 2x – 1 = 5  C:\fake\image18.png  2x = 6  C:\fake\image19.png  x = 3 C:\fake\image20.png  x = 3, y = 1 |  |
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| 6 | Draw the graphs of the equations 4x – y – 8 = 0 and 2x – 3y + 6 = 0 Also, determine the vertices of the triangle formed by the lines and x-axis. |  |
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|  | ANS:   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 4x – y – 8 = 0 and –y = – 4x + 8, C:\fake\image21.png  y = 4x – 8, Solution table for 4x – y – 8 = 0 is   |  |  |  |  | | --- | --- | --- | --- | | x | 0 | 1 | 2 | | y | –8 | –4 | 0 |   2x – 3y + 6 = 0; – 3y = – 2x – 6 3y = 2x + 6 Solution table for 2x – 3y + 6 = 0 is   |  |  |  |  | | --- | --- | --- | --- | | x | 0 | 3 | –3 | | y | 2 | 4 | 0 |   Vertices of the triangle formed by lines and x-axis are (2, 0), (3, 4) and (–3, 0). | C:\fake\image22.png | |  |
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| 7 | Solve for x and y by cross multiplication method: 7x – 9y – 19 = 0, 4x + 5y – 21 = 0 |  |
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|  | ANS:     Given equations are 7x – 9y – 19 = 0 ...(i) and 4x + 5y – 21 = 0 ...(ii) Here a1 = 7, b1 = – 9, c1 = – 19 and a2 = 4, b2 = 5, c2 = – 21 Now using cross multiplication method C:\fake\image23.png C:\fake\image24.png  C:\fake\image25.png C:\fake\image26.png  x = C:\fake\image27.png C:\fake\image28.png  x = C:\fake\image29.png  C:\fake\image30.png  x = 4 and y = C:\fake\image31.png C:\fake\image32.png  x = 4, y = 1. |  |
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