1) If the determinant $\Delta = \begin{vmatrix} 1 & 5 & 8 \\ 2 & 6 & 9 \\ 3 & 7 & 10 \end{vmatrix}$ and $\Delta' = \begin{vmatrix} 10 & 5 & 8 \\ 11 & 6 & 9 \\ 12 & 7 & 10 \end{vmatrix}$, calculate $\Delta + \Delta'$.
2) For which value of x the given matrix becomes singular?

$$\begin{bmatrix} 8 & x & 0 \\ 4 & 0 & 2 \\ 12 & 6 & 0 \end{bmatrix}$$

3) How many solutions are expected for the given system of linear equations?

$$2x_1 - x_2 + 3x_3 = 1$$
$$3x_1 - 2x_2 + 5x_3 = 2$$
$$-x_1 - 4x_2 + x_3 = 3$$

4) For the given matrix $A = \begin{bmatrix} 10 & 6 \\ 6 & 10 \end{bmatrix}$, determine the sum of all eigen values for A^3.
5) Three cards were drawn from a pack of 52 cards. Calculate the probability that they are a king, a queen, and a jack.
6) Consider two identical bags A1 and A2 each containing 10 balls of identical shapes and sizes. Bag A1 contains 7 red and 3 green balls, while bag A2 contains 3 red and 7 green balls. A bag is picked at random, and a ball is drawn from it, which was found to be red. What is the probability that the red ball came from bag A1?

Answers: 1) $\begin{vmatrix} 11 & 5 & 8 \\ 13 & 6 & 9 \\ 15 & 7 & 10 \end{vmatrix}$, 2) $x = 4$, 3) Unique, 4) 4160, 5) 16/5525, 6) 0.7