**Class: IX**   **Subject : Mathematics**   **Assignment 7: Polynomials**

1. If two polynomials $ax^3 + 4x^2 + 3x - 4$ & $x^3 - 4x + a$ leave the same remainder when divided by $(x - 3)$, find the value of a.

2. Evaluate using identities:- (a) 103×97 (b) $(0.99)^2$ (c) 105^3

3. Find the remainder when $4x^3 - 3x^2 + 2x - 4$ is divided by $x+2$.

4. Show that $(x - 1)$ is a factor of $x^{10} - 1$

5. Find the value of a, if $(x - a)$ is a factor of $x^3 - a^2x + x + 2$.

6. Determine the value of a for which the polynomial $2x^4 - ax^3 + 4x^2 + 2x + 1$ is divisible by $(1 - 2x)$.

7. Factorize the polynomials:-
   (a) $x^3 - 6x^2 + 11x - 6$ (b) $(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3$
   (c) $x^3 + 13x^2 + 31x - 45$ given that $x + 9$ is a factor
   (d) $8x^3 + 27^3 + z^3 - 18xyz$ (e) $(a + b)^3 + (b + c)^3 + (c + a)^3 - 3 (a + b) (b + c) (c + a)$

8. Factorize:-
   (a) $a^3 - 0.216$ (b) $2x^2 - \dfrac{5}{6}x + \dfrac{1}{12}$ (c) $(x + 1)^3 + (x - 1)^3$

9. Give possible expressions for the length and breadth of a rectangle having $A = 35y^2 + 13y - 12$ (Area).

10. Evaluate using a suitable identity:- $(1.93)^3 + (0.07)^3 - (2)^3$

11. Find the product: $(2x - y + 3z) (4x^2 + y^2 + 9z^2 + 2xy + 3yz - 6xz)$

12. Factorize by splitting the middle term :
    (a) $9x^2 - 3x - 9$ (b) $x^2 + 14x + 40$ (c) $5x^2 + 16x + 3$

Class: IX   **Subject : Mathematics**   **Assignment 3: Coordinate Geometry**

1. Write the coordinates of a point which:-
   (a) Lies on the x-axis and is at a distance of 4 units to the right of the origin.
   (b) Lies on the y-axis and is at a distance of y units below the x-axis.
   (c) Is at a distance of 3 units from the x-axis and 7 units from the y-axis. [there would be four such points]

2. Draw the graphs of the eqs:-
   (a) $3x - 2y = 7$ (b) $y = -2$
   on the same pair of axes. Read the coordinates of their point of intersection.

3. Find the point where the line represented by the equation $5y - 3x - 10 = 0$ cuts the y-axis.

4. Draw the graph of the line $3x + 4y = 18$. With the help of graph find value of y when $x = 2$. (show this point on the graph)

5. On a graph draw a quadrilateral whose vertices are (1,1), (2,4), (8,4) and (10,1). Justify the quadrilateral.

6. How will you describe the position of the table lamp on your study table to another person?
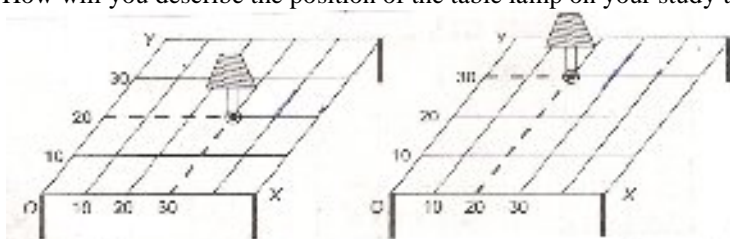
7. Draw the graph of $y = 2x + 4$. Use the graph to find the area between the line and the axes.

8. in which quadrant will the point lie, if:-
   (a) ordinate is 3 and abscissa is $- 7$
   (b) abscissa is $- 10$ and ordinate is $- 4$
   (c) Ordinate is 4 and abscissa is $- 6$.

9. Fill in the blanks:-
   (a) The coordinates of the origin 0 are   ....
   (b) The y coordinate of every point on the x-axis is ....
   (c) Distance along the x-axis is called   ....
   (d) Distance along the y-axis is called   ....
   (e) The point (x,y) = (y,x) only if   ....