## Class: IX

Subject : Mathematics
Assignment 2: Polynomials

1. If two polynomials $a x^{3}+4 x^{2}+3 x-4 \& x^{3}-4 x+a$ leave the same remainder when divided by $(x-3)$, find the value of a.
2. Evaluate using identities:- (a) $103 x 97 \quad$ (b) $(0.99)^{2} \quad$ (c) $105^{3}$
3. Find the remainder when $4 x^{3}-3 x^{2}+2 x-4$ 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 $x^{3}-a^{2} x+x+2$.
6. Determine the value of a for which the polynomial $2 x^{4}-a x^{3}+4 x^{2}+2 x+1$ is divisible by $(1-2 x)$.
7. Factorize the polynomials:-
(a) $x^{3}-6 x^{2}+11 x-6$
(b) $\left(\mathrm{a}^{2}-\mathrm{b}^{2}\right)^{3}+\left(\mathrm{b}^{2}-\mathrm{c}^{2}\right)^{3}+\left(\mathrm{c}^{2}-\mathrm{a}^{2}\right)^{3}$
(c) $x^{3}+13 x^{2}+31 x-45$ given that $x+9$ is a factor
(d) $8 x^{3}+27^{3}+z^{3}-18 x y z$
(e) $(\mathrm{a}+\mathrm{b})^{3}+(\mathrm{b}+\mathrm{c})^{3}+(\mathrm{c}+\mathrm{a})^{3}-3(\mathrm{a}+\mathrm{b})(\mathrm{b}+\mathrm{c})(\mathrm{c}+\mathrm{a})$
8. Factorize:-
(a) $\mathrm{a}^{3}-0.216$
(b) $2 x^{2}-\frac{5}{6} x+\frac{1}{12}$
(c) $(x+1)^{3}+(x-1)^{3}$
9. Give possible expressions for the length and breadth of a rectangle having $\mathrm{A}=35 \mathrm{y}^{2}+13 \mathrm{y}-12$ (Area).
10. Evaluate using a suitable identity:- $(1.93)^{3}+(0.07)^{3}-(2)^{3}$
11. Find the product: $(2 x-y+3 z)\left(4 x^{2}+y^{2}+9 z^{2}+2 x y+3 y z-6 x z\right)$
12. Factorize by splitting the middle term :
(a) $9 x^{2}-3 x-9$
(b) $x^{2}+14 x+40$
(c) $5 x^{2}+16 x+3$

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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) $3 x-2 y=7$
(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 $5 y-3 x-10=0$ cuts the $y$-axis.
4. Draw the graph of the line $3 x+4 y=18$. 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 $y=2 x+4$. 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
