POLYNOMIALS

ASSIGNMENT NO. 22

1. Expand using suitable identity $(2x - 3y + z)^2$
2. Factorise: $\frac{64}{125}p^3 - 8 - \frac{96}{25}p^2 + \frac{48}{5}p$
3. Find the sum of remainders when $x^3 - 3x^2 + 4x - 4$ is divided by $(x + 2)$ and $(x - 1)$.
4. If $a + p = 2$, prove that $a^3 + 6ap + p^3 - 8 = 0$
5. Find the values of a and b so that the polynomial $x^3 + 10x^2 + ax + b$ is exactly divisible by $(x - 1)$ and $(x + 2)$.
6. Factorise: $x^4 + 2x^3y - 2xy^3 - y^4$
7. Find the value of $8x^3 + 27y^3$ if $2x + 3y = 8$ and $xy = 2$
8. Simplify: $\left(x + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2}\right)\left(x^4 + \frac{1}{x^4}\right)$
9. Evaluate $(102)^3$ using a suitable identity.
10. Factorise $9x^2 + y^2 + z^2 - 6xy + 2yz - 6xz$. Hence find its value when $x = 1, y = 2$ and $z = -1$.