POLYNOMIALS

ASSIGNMENT NO. 20

1. If the polynomial $f(x) = px^3 + 4x^2 + 3x - 4$ and $g(x) = x^3 - 4x + p$ are divided by $(x - 3)$, then the remainder in each case is the same, find the value of p.
2. Find the value of $p^3 - q^3$, if $p - q = \frac{10}{9}$ and $pq = \frac{5}{3}$
3. Factorise: $x^4 - y^4$
4. Using remainder theorem, find the remainder when $x^3 - 2x^2 - 4x - 3$ is divided by $(x + 1)$.
5. If $x + y + 4 = 0$, then find the value of $x^3 + y^3 - 12xy + 64$
6. Factorise: $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$
7. If $p(x) = x^3 + 3x^2 - 2x + 4$, then find the value of $p(2) + p(-2) - p(0)$.
8. If $ab + bc + ca = 36$ and $a^2 + b^2 + c^2 = 85$, then find the value of $a + b + c$.
9. If $(x + 1)$ and $(x - 1)$ are factors of $ax^3 + x^2 - 2x + b$, then find the values of a and b. Also find the third factor.
10. Factorise: $y^3 - 2y^3 - 29y - 42$