POLYNOMIALS

1. Find the value of p for which x+p is factor of x^2+px +3 -p
2. Write the coefficient of x^2 in expansion of $(x-2)^3$
3. Verify whether $x = -\frac{1}{\sqrt{3}}$ is zero of $3x^2$ -1
4. Find the product $\left(y^2 + \frac{3}{2}\right)\left(y^2 - \frac{3}{2}\right)$

5. Find the common factor of the polynomials x^2+8x +15 and x^2+3x -10
6. Factorize $(16y^2-1) + (1-4y^•)^2$
7. Find the value of a , if x+a is a factor of x^4-a^2x^2+3x -a.
8. Verify that x^3- y^3= (x-y)(x^2+xy +y^2)

9. Simplify $(x + y + z)^2 - (x - y + z)^2$

10.   Factorize $(x^2 - 2x)^2 - 2(x^2 - 2x) - 3$

11.   Factorize $9a^3$-$27a^2$-100a +300, if it is given that (3a+10) is a
   factor of it.
12.   If a + b + c =12 , a^2 + b^2 + c^2=90 , find the value of
   a^3 + b^3 + c^3 - 3abc

13.   Show that $\frac{1}{3}$ and $\frac{4}{3}$ are zeroes of the polynomial $9x^3 - 6x^2 - 11x + 4$. *Also,* find the third zero of the polynomial

14. If $x^2 + px + q = (x+a)(x+b)$, then factorize $x^2 + pxy + qy^2$

15. Find the value of p and q if $a^2 - 1$ is factor of $pa^4 - 7a^3 + 9a^2 + qa - 10$

16. Let P and R are the remainders when the polynomial $f(x) = 4x^3 + 3x^2 - 12ax - 5$ and $g(x) = 2x^3 + ax^2 - 6x + 2$ are divided by $(x - 1)$ and $(x + 2)$ respectively. If $3P + R + 28 = 0$. find the value of a.