Class - IX Mathematics Ch-2 Polynomials

Assignment-3 Part-a

Q.1- By actual division, find the quotient and the remainder when (x^4+1) is divided by $(x-1)$.

Q.2- Verify the division algorithm for the polynomials $P(x) = 2x^4 - 6x^3 + 2x^2 - x + 2$ and $g(x) = x+2$

Q.3- Using the remainder theorem, find the remainder, when $x^3 - 6x^2 + 2x - 4$ is divided by $1 - \frac{3}{2}x$.

Q.4- The polynomial $(2x^3 + x^2 - ax + 2)$ and $(2x^3 - 3x^2 - 3x + a)$ when divided by $(x-2)$ leave the same remainder. Find the value of a.

Q.5- The polynomial $P(x) = x^4 - 2x^3 + 3x^2 - ax + b$ when divided by $(x-1)$ and $(x+1)$ leaves the remainders 5 and 19 respectively. Find the values of a and b. Hence, find the remainder when $P(x)$ is divided by $(x-2)$.

Q.6- If $x-a$ is a factor of $(x^3 - ax^2 + 2x + a - 1)$, find the value of a.

Q.7- Without actual division, prove that $2x^4 + 3x^3 - 12x^2 - 7x + 6$ is exactly divisible by $x^2 + x - 6$.

Q.8- Find the values of a and b so that $2x^3 + ax^2 + x + b$ has $x+2$ and $2x-1$ as factors.

Q.9- What must be added to $x^3 - 3x^2 + 4x - 15$ to obtain a polynomial which is exactly divisible by $(x-3)$?

Assignment-3 Part-6

Q.10- What must be subtracted from $4x^4 - 2x^3 - 6x^2 + 2x + 6$ so that the result is exactly divisible by $(2x^2 + x - 1)$?

Q.11- Using factor theorem, show that $2\sqrt{2}x^2 + 5x + \sqrt{2}$ has factor $x + \sqrt{2}$.

Q.12- If both $x-2$ and $x - \frac{1}{2}$ are factors of $px^2 + 5x + r$, prove that $p = r$

Q.13- Factorise $\sqrt{2}x^2 + 9x + 4\sqrt{2}$.

Q.14- Expand $(-x + 2y - 3z)^2$

Q.15- Factorise $16x^2 + 4y^2 + 9z^2 - 16xy - 12yz + 24xz$.

Q.16- Simplify $(2x - 5y)^3 - (2x + 5y)^3$

Q.17- Factorise $a^3 - b^3 + 1 + 3ab$.

Q.18- If $b = 2 - a$, prove that $a^3 + 6ab + b^3 - 8 = 0$

Q.19- Using factor theorem, factorise $x^2 + 9x + 18$.

Q.20- By splitting the middle term, factorise $2x^2 - 7x - 39$ and $3 - x - 2x^2$.