DOON PUBLIC SCHOOL

(C.B.S.E. Affiliation No. 1030502)

Mathematics
Holiday Assignment-3
Session-2021-22
Class -X

1. Show that $x^2 - 3$ is a factor of $2x^4 + 3x^3 - 2x^2 - 9x - 12$

2. Divide $(6 + 19x + x^2 - 6x^3)$ by $(2 + 5x - 3x^2)$ and verify the division algorithm

3. Find other zeroes of the polynomial $p(x) = 2x^4 + 7x^3 - 19x^2 - 14x + 30$ if two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$

4. Find all the zeroes of $2x^4 - 9x^3 + 5x^2 + 3x - 1$, if two of its zeroes are $2 + \sqrt{3}$ and $2 - \sqrt{3}$

5. Find all the zeroes of polynomial $4x^4 - 20x^3 + 23x^2 + 5x - 6$ if two of its zeroes are 2 and 3

6. When a polynomial f(x) is divided by $x^2 - 5$ the quotient is $x^2 - 2x - 3$ and remainder is zero. Find the polynomial and all its zeroes

7. If the polynomial $f(x) = x^4 - 6x^3 + 16x^2 - 25x + 10$, is divided by another polynomial $x^2 - 2x + k$ the remainder Comes out to be $x + a$, Find k and a

8. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial g(x), the quotient and remainder were $x - 2$ and $-2x + 4$, respectively. Find g(x)

9. If the polynomial $6x^4 + 8x^3 - 5x^2 + ax + b$ is exactly divisible by the polynomial $2x^2 - 5$, then find the values of a and b

10. What must be subtracted from $2x^4 - 11x^3 + 29x^2 - 40x + 29$, so that the resulting polynomial is exactly divisible By $x^2 - 3x + 4$

11. Find the polynomial, whose zeroes are $2 + \sqrt{3}$ and $2 - \sqrt{3}$

12.Form a quadratic polynomial, one of whose zero is $2 + \sqrt{5}$ and the sum of zeroes is 4

13. Find a quadratic polynomial whose sum and product of the zeroes are 21/8 and 5/16

14. Write a quadratic polynomial, the sum and product of whose zeroes are 3 and -2

15. Find the zeroes of the polynomial and verify the relationship between the zeroes and the coefficient

a) $4x^2 - 7$ b) $\sqrt{3}x^2 - 8x + 4\sqrt{3}$

16. If one root of the polynomial $5x^3 + 13x + k$ is reciprocal of the other, then find the value of k?

17. If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other. Find the value of a

18. If α and β are the zeroes of the polynomial $f(x) = x^2 - 8x + k$ such that $\alpha^2 + \beta^2 = 40$, find k

19. If α, β are the zeroes of a polynomial, such that $\alpha + \beta = 6$ and $\alpha\beta = 4$, then writes the polynomial

20. If the product of zeroes of the polynomial $ax^2 - 6x - 6$ is 4, find the value of a