



INDIAN SCHOOL DARSAIT

DEPARTMENT OF MATHEMATICS



Subject : MATHEMATICS Topic : POLYNOMIALS Date of Worksheet : 2-4-2019

Worksheet no:2

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Name of the Student _____ Class & Division: _____ Roll Number : _____

Section A

Marks

1. If one zero of the polynomial $f(x) = (k^2 + 4)x^2 + 13x + 4k$ is reciprocal of the other, then find the value of k 1
2. If the product of zeros of the polynomial $f(x) = ax^3 - 6x^2 + 11x - 6$ is 4, then find a 1
3. If $x+a$ is a factor of $2x^2 + 2ax + 5x + 10$, find a 2
4. Find the zeros of the polynomial $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$, and verify the relationship between the zeros and co-efficients. 3
5. What must be added to the polynomial $9x^4 - 4x^2 + 4$ so that the resulting polynomial is exactly divisible by $3x^2 + x - 1$? 3
6. What must be subtracted from the polynomial $6x^3 + 11x^2 - 39x - 65$ so that the resulting polynomial is exactly divisible by $x^2 + x - 1$? 3
7. It is given that 1 is one of the zeros of the polynomial $f(x) = 7x^3 - x^3 - 6$. Find the other zeros. 3
8. Divide $(x^3 + 3x^2 - 5x + 4)$ by $(x-2)$ and verify Division Algorithm. 4
9. If the zeros of the polynomial $x^3 + 3x^2 + x + 1$ are $a-b$, a and $a+b$, find the values of a and b . 4
10. Use remainder theorem to find the value of k , it being given that when $x^3 + 2x^2 + kx + 3$ is divided by $(x-3)$, then the remainder is 21. 4
11. If α and β are the zeros of the polynomial $f(x) = x^2 + x + 1$, then find
 i) $\frac{1}{\alpha} + \frac{1}{\beta}$ ii) $\alpha^2 + \beta^2$ iii) $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$ iv) $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$ 4
12. Obtain all the zeros of $x^4 + 4x^3 - 2x^2 - 20x - 15$, if two of its zeros are $\sqrt{5}$ and $-\sqrt{5}$. 4



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Section B- HOT QUESTIONS

1. If sum of the squares of zeros of the quadratic polynomial $f(x) = x^2 - 8x + k$ is 40 , find the value of k. 3

2. If the polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$, the remainder comes out to be $ax + b$, find a and b. 4

3. 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 4

4. If α and β are the zeros of the polynomial $f(x) = x^2 - 5x + k$, such that $\alpha - \beta = 1$, find the value of k. 3

5. If α and β are the zeros of the polynomial $f(x) = x^2 - x - 2$, then find a polynomial whose zeros are $2\alpha + 1$ and $2\beta + 1$. 3