PRACTICE TEST: CLASS-X

POLYNOMIALS (X)

1. Find the zeros of the quadratic polynomial $f(x) = 6x^2-3$ and verify the relationship between the zeros and its coefficient.
2. Find a quadratic polynomial, the sum and product of whose zeros are $\sqrt{2}$ and -3/2 respectively. Also find its zeros.
3. If α and β are the zeros of the quadratic polynomial $f(x) = k+4x+4$ such that $\alpha^2+\beta^2=24$. Find the values of k.
4. Find a quadratic polynomial whose zeros are reciprocals of the zeros of the polynomial $f(x) = ax^2+bx+c$. $a\neq0$, $b\neq0$.
5. Zeros of the cubic polynomial $f(x) = x^3-6x^2+3x+10$ are of the form a, a+b, a+2b for some real numbers a and b as well as the zeros of the given polynomial.
6. If the zeros of the polynomial $f(x) = ax^3+3bx^2+3cx+d$ are in A.P. prove that $2b^3-3abc+a^2d=0$.
7. Apply the division algorithm to find the quotient and remains on dividing f(x) by g(x) as given below:-
   (i) $f(x) = x^4-3x^2+4x+5$, $g(x) = x^2+1-x$
   (ii) $f(x) = x^4-5x+6$, $g(x) = 2-x^2$.
8. What must be added to $f(x) = 4x^4+2x^3-2x^2+x-1$ so that the resulting polynomial is divisible by $g(x) = x^2+2x-3$.
9. Find K so that x^2+2x+k are a factor of $2x^4+x^3-14x^2+5x+6$. Also find all the zeros of the two polynomials.
10. Given that $x=\sqrt{5}$ is a factor of the cubic polynomial $x^3-3\sqrt{5}x^2+13x-3\sqrt{5}$. Find all the zeros of the polynomials.