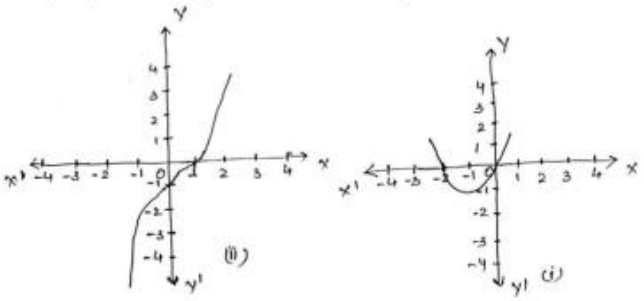
an International CBSE Finger Print School
Coimbatore

SUBJECT NAME –MATHEMATICS
GRADE- X

QUESTION BANK

Level –I

1. Find the value of zeroes of the polynomials p(x) as shown in the graph and hence find the polynomial.(CBSE 2014-15).



2. Let α and β are the zeroes of a quadratic polynomial $2x^2 - 5x - 6$ then form a quadratic polynomial whose zeroes are $\alpha + \beta \; and \; \alpha\beta$. (CBSE 2011)

3. Check whether $x^2 + 3x + 1$ is a factor of $3x^4 + 5x^3 - 7x^2 + 2x + 2$? (CBSE 2010)
4. Can (x-7) be the remainder on division of a polynomial $p(x) \; by \; (7x + 2)$? Justify your answer(CBSE 2010)
5. What must be subtracted from the polynomial $f(x) = x^4 + 2x^3 - 13x^2 - 12x + 21$, so that the resulting polynomial is exactly divisible by $x^2 - 4x + 3$? (CBSE 2013)
6. Write the degree of zero polynomial?
7. Find the zeroes of a quadratic polynomial $6x^2 - 7x - 3$ and verify the relationship between the zeroes and the coefficients? (CBSE 2014-15
8. Find the quadratic polynomial sum of whose zeroes is 2√3 and their product is 2?(CBSE 2008)

Level II

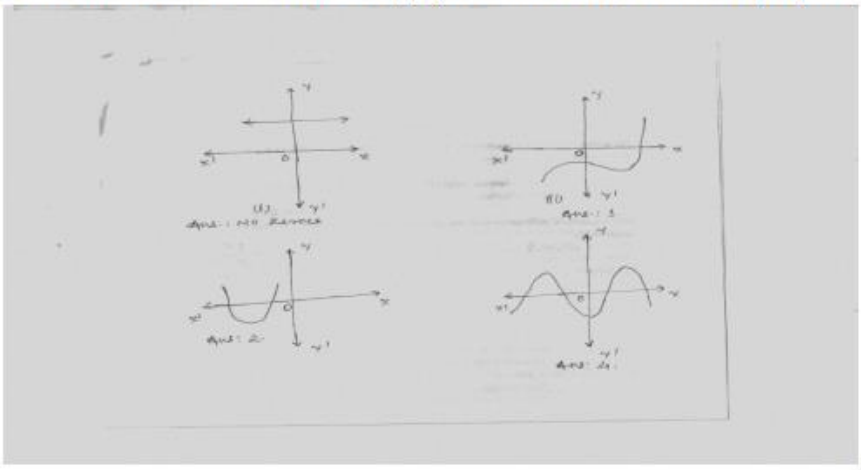
9. If the sum of squares of the zeroes of the polynomials $6x^2 + x + k$ is $\frac{25}{36}$. find the value of k?(CBSE 2014-15)
10. If one zero of the quadratic polynomial f(x)= $4x^2 - 8kx - 9$ is negative of the other, then find the value of k?(CBSE 2014-15)
11. Find the values of k for which the quadratic equation $9x^2 - 3kx + k = 0$ has equal roots. (CBSE 2014)
12. On dividing $3x^3 - 2x^2 + 5x + 5$ by the polynomial p(x), the quotient and remainder are $x^2 - x + 2$ and -7 respectively. Find p(x)?(CBSE 2013)
13. Find all the zeroes of the polynomial $x^4 + x^3 - 9x^2 - 3x + 18$, if two of its zeroes are $\sqrt{3}$ $and \sqrt{-3}$. (CBSE 2010,13)
14. If α , β are zeroes of the quadratic polynomial $p(x) = x^2 - (k - 6)x + (2k + 1)$. Find the value of k if $\alpha + \beta = \alpha\beta$. (CBSE 2010)
15. If the zeroes of the polynomial $x^2 - 5x + k$ are the reciprocal of each other, then find the value of K? (CBSE 2011)
16. If α and β are zeroes of the quadratic polynomial $x^2 - 6x + a$, find the value of $'a'$. If $3\alpha + 2\beta = 20$.(CBSE 2010)

LEVEL III

17. On dividing $3x^3 + 4x^2 + 5x - 13$ by a polynomial g(x), the quotient and remainder are $3x + 10$ and $16x - 43$ respectively. Find the polynomial g(x). (CBSE 14-15)
18. If -5 is a root of quadratic equation $2x^2 + px - 15 = 0$ and the quadratic equation $p(x^2 + x)k = 0$ has equal roots, find the value of k. (CBSE 2106)
19. If α, β and γ are zeroes of the polynomial $6x^3 + 3x^2 - 5x + 1$, then find the values of $\alpha^{-1} + \beta^{-1} + \gamma^{-1}$. (CBSE 2010)
20. Form a cubic polynomial whose zeroes are 3, 2 and -1. Hence find
    (i) Sum of its zeroes
    (ii) Sum of the product, taken two at a time
    (iii) Product of its zero.

(SELF EVALUATION QUESTIONS)

21. Find the number of zeroes of p(x) in each case, for some polynomials p(x).



22. If α and β are the zeroes of the equation $6x^2 + x - 2 = 0$, find $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$

23. If one of the zeroes of the polynomial $2x^2 + px + 4 = 0$ is 2, find the other zero, also find the value of p

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

Value Based Questions

25. If α be the number of person who take junk food, β be the person who take food at home and α and β be the zeroes of quadratic polynomial $f(x) = x^2 - 3x + 2$, then find a quadratic polynomial whose zeroes are $\frac{1}{2\alpha+\beta}$ and $\frac{1}{2\beta+\alpha}$, which way of taking food you prefer and why?

26. If the number of apples and mangoes are the zeroes of the polynomial $3x^2 = 8x - 2k + 1$ and the number of apples is 7 times the number of mangoes, then find the number of zeroes and value of k. What are benefits of fruits in our daily life?