Class: X Mathematics Assignment: 2 April 2010 Chapter: POLYNOMIALS

1. Find the zeroes of the following quadratic polynomials and verify the relationships between the zeroes and the coefficients of the polynomials:- (a): $p(x) = 8x^2 - 19x - 15$; (b): $q(x) = 4\sqrt{3}\,x^2 + 5x - 2\sqrt{3}$; (c): $f(x) = 5x - 4\sqrt{3} + 2\sqrt{3}\,x^2$.
2. Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively:-
   (i) $\frac{2}{3}$, -4 (ii) $\frac{-1}{\sqrt{2}}$, $\frac{1}{\sqrt{2}}$ (iii) $\sqrt{5}$, -2 (iv) $\frac{-1}{\sqrt{2}}$, $\frac{2}{3}$
3. Verify that 3, -1 and $\frac{-1}{3}$ are zeroes of the polynomial $p(x) = 3x^3 - 5x^2 - 11x - 3$. Then, verify the relationships between the zeroes and its coefficients.
4. For what value of K is 4 a zero of $f(x) = x^2 + kx + 4$?
5. Find the quotient and remainder when p(x) is divided by q(x).
   (i) $p(x) = 6x^3 + 11x^2 - 39x - 65$, $q(x) = x^2 - 1 + x$
   (ii) $p(x) = 4 + 9x^2 - 4x^2$, $q(x) = x + 3x^2 - 1$
   (iii) $p(x) = 30x^4 - 82x^2 + 11x^3 + 48 - 12x$, $q(x) = 3x^2 + 2x - 4$
6. What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$?
7. What must be added to $4x^4 + 2x^3 - 2x^2 + x - 1$, so that the resulting polynomial is divisible by $x^2 + 2x - 3$?
8. If -2 is a zero of $f(x) = x^3 + 13x^2 + 32x + 20$, find its other zeroes.
9. $\sqrt{3}$ and $-\sqrt{3}$ are zeroes of $f(x) = x^4 - 3x^3 - x^2 + 9x - 6$. Find all the zeroes of p(x).
10. Obtain all zeroes of the polynomial $p(x) = 2x^4 + x^3 - 14x^2 - 19x - 6$, if two of its zeroes are -1 and -2.
11. Find all the zeroes of $f(x) = 2x^4 - 2x^3 - 7x^2 + 3x + 6$ if two of its zeroes are $\frac{\sqrt{3}}{2}$ and $-\frac{\sqrt{3}}{2}$.
12. Find all values of p and q so that 1, -2 are zeroes of the polynomial $f(x) = x^3 + 10x^2 + px + q$.
13. If $p(x)=2x^4 + 3x^3 - 3x^2 - 2x + 5$ is divided by $2x^2 + 3x - 1$,then the remainder is x – a. Find a.
14. On dividing $f(x) = 2x^3 - 5x^2 + 4x - 8$ by g(x), the quotient and the remainder are (2x – 9) and 24x – 17, respectively. Find g(x).