INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF MATHEMATICS
CLASS X
WORKSHEET NO. 3
POLYNOMIALS

SECTION A: (1 MARK)

1.	Form a quadratic polynomial whose zeroes are $\frac{2}{3}$ and $\frac{-1}{3}$. **(CBSE 2008)**	$(9x^2 - 3x - 2)$
2.	If -1 is a zero of the polynomial $f(x) = x^2 - 7x - 8$, then find the other zero. **(CBSE 2012)**	(8)
3.	If α and β are the zeroes of the polynomial $2x^2 + 5x + 1$, then what is the value of $\alpha + \beta + \alpha\beta$?	(-2)
4.	If the sum of the zeroes of the polynomial $P(x) = 3k^2 + (2k+1)x - k + 5$ is equal to the product of the zeroes, then, find the value of k.	(k = -6)
5.	The graph of the polynomial $f(x) = 2x - 5$ is a straight line. At which point does the graph intersect the x-axis? **(CBSE 2012)**	$\left(\frac{5}{2}, 0\right)$
6.	How many polynomials can u find having -2 and 5 as their only zeroes? **(EXEMPLAR)**	Infinitely many

SECTION B: (2 MARKS)

7.	For what value of k, (-4) is a zero of the polynomial $x^2 - x - (2k+2)$? **(CBSE 2009)**	K = 9
8.	If m and n are the zeroes of the polynomials $3x^2 + 11x - 4$, find the value of $\frac{m}{n} + \frac{n}{m}$. **(CBSE 2012)**	$\left(\frac{-145}{12}\right)$
9.	If the zeroes of the polynomial $x^2 + px + q$ are double in value to the zeroes of the polynomial $2x^2 - 5x - 3$, find the values of p and q.	p = -5, q = -6.
10.	If $ax^2 - 7x + c$ has 14 as the sum of the zeroes and also as product of the zeroes, find the value of a and c. **(HOTS)**	a = ½ c = 7.

SECTION C: (3 MARKS)

11.	Find the zeroes of the following polynomials by factorization method and verify the relations between the zeroes and the coefficients of the polynomial. (i) $2x^2 - (1 + 2\sqrt{2})x + \sqrt{2}$ **(EXEMPLAR)** (ii) $y^2 + \frac{3}{2}\sqrt{5}\,y - 5$.	(i)1/2, $\sqrt{2}$ (ii)$-2\sqrt{5}, \frac{\sqrt{5}}{2}$
12.	Find the value of a and b so that $8x^4 + 14x^3 - 2x^2 + ax + b$ is exactly divisible by $4x^2 + 3x - 2$. **(CBSE 2011)**	a= -7 b= 2.
13.	If p and q are the zeroes of the polynomial $6y^2 - 7y + 2$, find a quadratic polynomial whose zeroes are $\frac{1}{p}$ and $\frac{1}{q}$. **(CBSE 2011)**	$\frac{1}{2}(2y^2 - 7y + 6)$
14.	On dividing a polynomial $3x^3 + 4x^2 + 5x - 13$ by a polynomial g(x), the quotient and the remainder were (3x + 10) and (16x – 43) respectively. Find g(x). **(CBSE 2011)**	$x^2 - 2x + 3$
15.	If one zero of a polynomial $3x^2 - 8x + 2k + 1$ is seven times the other, find the value of k. **(CBSE 2011)**	K = 2/3.

SECTION D: (4 MARKS)

16.	Find the other zeroes of the polynomial $P(x) = 2x^4 + 7x^3 - 19x^2 - 14x + 30$, if two of its zeroes are $\frac{3}{2}$ $and - 5$. **(CBSE 2011)**	$-\sqrt{2}, \sqrt{2}$
17.	Given $\sqrt{2}$ is a zero of the cubic polynomial $6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$, find the other two zeroes.	$\frac{-\sqrt{2}}{2}, \frac{-2\sqrt{2}}{3}$
18.	If the polynomial $x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, the remainder comes out to be x + a, find the values of k and a.	K = 5 a = -5.
19.	If the remainder on division of $x^3 + 2x^2 + kx + 3$ by $(x - 3) is$ 21, find the quotient and the value of k. Hence find the zeroes of the cubic polynomial $x^3 + 2x^2 + kx - 18$. **(EXEMPLAR)**	k = -9 Quotient = $x^2 + 5x + 6$ Zeroes: 3,-2, -3
20.	If α and β are the zeroes of the polynomial $p(x) = 2x^2 + 5x + k$ satisfying the relation $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then find the value of k.	k = 2.
21.	For which values of a and b, are the zeroes of $q(x) = x^3 + 2x^2 + a$ also the zeroes of the polynomial $p(x) = x^5 - x^4 - 4x^3 + 3x^2 + 3x + b$? Which zeroes of p(x) are not the zeroes of q(x)? **(EXEMPLAR)**	a = -1, b = -2 1 and 2