



INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF MATHEMATICS
CLASS IX
WORKSHEET NO. 2
POLYNOMIALS



SECTION A: (1 MARK)

1.	If $2x+1$ is one factor of the polynomial $2x^2 - x - 1$, then find the other factor. (CCE 2015)	$x - 1$
2.	Write the degree of $(x^2 + 1)(x^3 + 1)^2$	8
3.	If $p(x) = 2x^3 - x^2 + 3x + 1$, then find the value of $p(-1) + p(2)$ (CCE 2013)	14
4.	If $x^{21} + x^2 + x^3 - 20$ is divided by $x + 1$, find the remainder.	-21
5.	If $p(x) = 5x^3 - 2x^2 + 3x^5 - 12 + x + 0x^{10}$, then (i) find coefficient of x^2 , (ii) write in standard form and (iii) degree of the polynomial.	(i) -2 (ii) $3x^5 + 5x^3 - 2x^2 + x - 12$
6.	Find the value of a , if $x - a$ is a factor of $2x^3 - 2ax^2 + 5x + a + 6$	$a = -1$

SECTION B: (2 MARKS)

7.	Factorise: $7x^2 + 2\sqrt{14}x + 2$	$(\sqrt{7}x + \sqrt{2})(\sqrt{7}x + \sqrt{2})$
8.	Evaluate using suitable identity: (i) 74×68 (ii) 102×98	(i) 5032 (ii) 9996
9.	Evaluate using suitable identity: $(-17)^3 + 5^3 + 12^3$	-3060
10.	Give possible expression for the length and breadth of the rectangle, which has area = $a^2 - 6a + 8$	$(a-4)(a-2)$
11.	Evaluate using a suitable identity: (i) $(97)^3$ (ii) $(105)^3$	(i) 912673 (ii) 1157625
12.	Expand: (i) $(2x - \frac{1}{2}y - 3z)^2$ (ii) $(3a^2 + b - 5c)^2$	$4x^2 - \frac{1}{4}y^2 + 9z^2 - 2xy + 3yz - 12xz$
13.	Factorise: $(9x^2 - 1) - (1 + 3x)^2$ (NCERT EXEMPLAR)	$-2(3x + 1)$

SECTION C: (3 MARKS)

14.	Factorise: $(ax + by)^2 + (ay - bx)^2$ (NCERT EXEMPLAR)	$(a^2 + b^2)(x^2 + y^2)$
15.	Find the value of $x^3 - 8y^3 - 36xy - 216$, when $x = 2y + 6$.	Zero

16.	If the polynomials $2x^3 + ax^2 + 3x - 5$ and $x^3 + x^2 + 4x + a$ leaves the same remainder when divided by $(x - 2)$, find the value of a.	a=1
17.	Factorise: (i) $x^4 + x$ (ii) $12x^2 - 17x + 6$	X(x+1)(x ² -x+1) (ii) (3x-2)(4x-3)
18.	Factorize: $(m + 2n)^2 + 101(m + 2n) + 100$ (CCE 2013)	$(m+2n+100)(m+2n+1)$
19.	Find the product $(5a - 3b)(25a^2 + 15ab + 9b^2)$ (CCE 2014)	$125a^3 - 3b^3$
20.	Show that -1 and $2/3$ are the zeroes of the polynomial $3x^3 - 5x^2 - 4x + 4$. Also, find the third zero of the polynomial.	

SECTION D: (4 MARKS)

21.	Factorise: (i) $x^3 + 4x^2 + x - 6$ (ii) $y^3 - 2y^2 - 29y - 42$	i) $(x-1)(x+2)(x+3)$ ii) $(x+2)(x+3)(x-7)$
22.	Factorise: (i) $216a^3 - 2\sqrt{2}b^3$ (ii) $\frac{64}{27}z^3 - 1 - \frac{16}{3}z^2 + 4z$	(i) $(6a - \sqrt{2}b)(36a^2 + 6\sqrt{2}b^2)$ (ii) $(\frac{4}{3}z - 1)^3$
23.	Find the value of p and q if $(x + 1)$ and $(x + 2)$ are the factors of $x^3 + 3x^2 - 2px + q$.	P=1, q= -4
24.	Factorise: $6x^3 - 7x^2 - 8x + 5$ (CCE 2015)	$(x+1)(3x-5)(2x-1)$
25.	If $a+b+c=5$ and $ab + bc + ca = 10$ then prove that $a^3 + b^3 + c^3 - 3abc = -25$ (NCERT EXEMPLAR)	
26.	By long division, divide the polynomial $x^4 + x^3 - 2x^2 - x + 1$ by $x + 1$ and verify the remainder by using remainder theorem (CCE 2014)	Q(x)= x^3-2x+1 , r(x)=0
27.	Without actually calculating the cubes, find the value of $2(0.3)^3 + (0.4)^3 + (0.5)^3 + (-0.7)^3 + (-0.8)^3$. Also write the identity used. (CCE 2016)	- 0. 612
28.	Find the quotient and remainder obtained on dividing $p(x) = 4x^4 + 11x^3 + 2x^2 - 11x - 6$ by $x^2 + 2x + 2$ and verify remainder by using remainder theorem. (CCE 2016)	Q(x) = $4x^2 + 3x - 12$ r(x) = $- 23x + 18$