INDIAN SCHOOL AL WADI AL KABIR

DEPARTMENT OF MATHEMATICS

Class IX (2025-26) Worksheet – POLYNOMIALS

Questions of 1 mark each

Q.1. If $49x^2 - b = \left(7x + \frac{1}{2}\right)\left(7x - \frac{1}{2}\right)$, then the value of b is

A	0	B	$\frac{1}{2}$	C	$\frac{1}{4}$	D	$\frac{1}{\sqrt{2}}$

Q.2. One of the factors of the polynomial $25x^2 + 16y^2 + 4z^2 - 40xy + 16yz - 20zx$ is

A	$(5x + 4y + 2z)$	**B**	$(5x - 4y + 2z)$	**C**	$(-5x + 4y + 2z)$	**D**	$(-5x - 4y + 2z)$

Q.3. The value of $369^2 - 368^2$ is

A	12	B	81	C	37	D	737

Q.4. If $3 + 5 - 8 = 0$, then the value of $(3)^3 + (5)^3 - (8)^3$ is

A	260	B	-360	C	-160	D	160

Q.5. On dividing $x^3 + 3x^2 + 3x + 1$ by $x + \pi$, we get remainder:

A	$-\pi^3 + 3\pi^2 - 3\pi + 1$	B	$\pi^3 - 3\pi^2 + 3\pi + 1$	C	$-\pi^3 - 3\pi^2 - 3\pi - 1$	D	$-\pi^3 + 3\pi^2 - 3\pi - 1$

Q.6. The coefficient of x^2 in the product of $(2x^2 - 5x + 4)$ and $(x^2 + 7x - 8)$ is

A	68	B	-47	C	-68	D	47

Q.7. If $(x - 3)$ is a factor of the equation $(x^2 + 4xp - 3p)$, then the value of p is:

A	1	B	-1	C	2	D	0

Q.8. The factors of $3x^2 - x - 4$ are:

A	$(3x - 4)(x + 1)$	B	$(3x - 4)(x - 1)$	C	$(3x + 4)(x - 1)$	D	$(3x + 4)(x + 1)$

<table>
<tr><td>Q.9.</td><td colspan="8">Which of the following is not a polynomial?</td></tr>
<tr><td></td><td>A</td><td>$x^2+\sqrt{2}x+3$</td><td>B</td><td>$x^2+\sqrt{2x}+6$</td><td>C</td><td>x^3+3x^2-3</td><td>D</td><td>$6x+4$</td></tr>
<tr><td></td><td colspan="8">ASSERTION REASONING
Directions: In the following question, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(C) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.</td></tr>
<tr><td>Q.10</td><td colspan="8">ASSERTION: The coefficient of x in the expansion of $(x-3)^3$ is 27.
REASON: $(a-b)^3=a^3-b^3-3ab(a-b)$</td></tr>
<tr><td>Q.11</td><td colspan="8">ASSERTION: The zeroes of the polynomial x^2-1 are $x=1$ and $x=-1$.
REASON: A cubic polynomial has three zeroes.</td></tr>
<tr><td>Q.12</td><td colspan="8">If $a^2+b^2+c^2=20$ and $a+b+c=0$, find $ab+bc+ca$</td></tr>
<tr><td>Q.13</td><td colspan="8">If $4x^2+9y^2=97$ and $xy=6$, find the value of $2x+3y$.</td></tr>
<tr><td>Q.14</td><td colspan="8">If $x=2$ is a root of the polynomial $f(x)=2x^2-3x+7a$, find the value of a.</td></tr>
<tr><td>Q.15</td><td colspan="8">If $2x+3y=12$ and $xy=6$, find the value of $8x^3+27y^3$.</td></tr>
<tr><td>Q.16</td><td colspan="8">Factorise:
i) $6a^2-a-15$
ii) $2x^2+3y^2+5z^2-2\sqrt{6}xy+2\sqrt{15}yz-2\sqrt{10}xz$</td></tr>
<tr><td>Q.17</td><td colspan="8">If $f(x)=5x^2-4x+5$, find $f(1)+f(-1)-f(0)$.</td></tr>
<tr><td>Q.18</td><td colspan="8">Using Factor theorem, determine whether $g(x)$ is a factor of $p(x)$:
$P(x)=2x^3+x^2-2x-1, g(x)=x+1$</td></tr>
<tr><td>Q.19.</td><td colspan="8">Factorize the following:
a) $x^3+9x^2+23x+15$
b) $x^3+6x^2+11x+6$</td></tr>
</table>

Q.20. Complete the blank spaces provided in the table:

1.		$x^3 + y^3 + 3xy(x + y)$
2.	$(x + y + z)^2$	
3.		$x^2 + (a + b)x + ab$
4.	$x^3 + y^3$	
5.		$x^2 - 2xy + y^2$
6.		$x^3 - y^3 - 3x^2y + 3xy^2$
7.	$x^3 + y^3 + z^3 - 3xyz$	
8.		$(x + y)(x - y)$
9.	$(x + y)^2$	
10.		$x^3 - y^3 - 3xy(x - y)$
11.	$x^3 - y^3$	

Q.21 Evaluate using identities:

i) 105×106

ii) 102^3

ANSWERS

Q.1	C	**Q.2**	C	**Q.3**	D	**Q.4**	B
Q.5	A	**Q.6**	B	**Q.7**	B	**Q.8**	A
Q.9	B	**Q.10**	A	**Q.11**	B	**Q.12**	-10
Q.13	13	**Q.14**	$\frac{-2}{7}$	**Q.15**	432	**Q.16**	i)(2a+3)(3a-5) ii)$\left(-\sqrt{2}x + \sqrt{3}y + \sqrt{5}z\right)\left(-\sqrt{2}x + \sqrt{3}y + \sqrt{5}z\right)$
Q.17	15	**Q.18**		**Q.19**	i) $(x + 1)(x + 5)(x + 3)$ ii) $(x + 1)(x + 2)(x + 3)$	**Q.21**	i) 11130 ii) 1061208