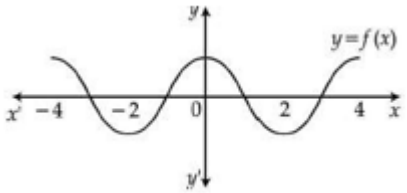
INDIAN SCHOOL AL WADI AL KABIR

Class X, Mathematics

POLYNOMIALS WORKSHEET- 3

OBJECTIVE TYPE (1 Mark)

Q.1. In the given figure, the number of zeroes of the polynomial f(x) is/are



	A	1	**B**	2	**C**	3	**D**	4

Q.2. The quadratic polynomial, the sum of whose zeroes is -5 and their product is 6, is

	A	x^2+5x+6	**B**	x^2-5x+6	**C**	x^2+5x-6	**D**	x^2-5x-6

Q.3. If one of the zeroes of the quadratic polynomial $(k-1)x^2+kx+1$ is -3, then the value of k is

	A	$\frac{-4}{9}$	**B**	$\frac{4}{3}$	**C**	$\frac{2}{9}$	**D**	$\frac{-2}{3}$

Q.4. If p *and* q are the zeroes of the polynomial $4y^2-4y+1$, then the value of $\frac{1}{p}+\frac{1}{q}+pq$ is

	A	$\frac{17}{4}$	**B**	$\frac{-3}{4}$	**C**	$\frac{5}{4}$	**D**	$\frac{-15}{4}$

Q.5. If α and β are zeroes of the polynomial $2x^2-5x+7$, then the value of $\alpha^{-1}+\beta^{-1}$ is

	A	$\frac{7}{2}$	**B**	$\frac{-5}{2}$	**C**	$\frac{7}{5}$	**D**	$\frac{5}{7}$

Q.6. If one zero of the polynomial $3x^2-8x+2k+1$ is seven times the other then the value of k is

	A	$-\frac{2}{3}$	**B**	-2	**C**	$\frac{2}{3}$	**D**	-3

Q.7. The zeroes of the quadratic polynomial $4x^2-5$ are

	A	$\frac{\sqrt{5}}{2},\frac{-\sqrt{5}}{2}$	**B**	$\frac{\sqrt{5}}{2},\frac{\sqrt{5}}{2}$	**C**	$\frac{\sqrt{2}}{5},\frac{\sqrt{2}}{5}$	**D**	$\frac{\sqrt{2}}{5},\frac{-\sqrt{2}}{5}$

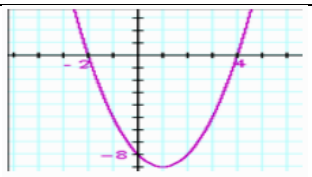
Q.8. If the product of the zeroes of $x^2-3kx+2k^2-1$ is 7, then find the values of k are

	A	-3 *and* 3	**B**	-2 *and* 3	**C**	-2 *and* 2	**D**	-3 *and* 2

Q.9. If one zero of the polynomial x^2-4x+1 is $(2+\sqrt{3})$, then the other zero

	A	$2-\sqrt{3}$	**B**	$2+\sqrt{3}$	**C**	$4+\sqrt{3}$	**D**	$4-\sqrt{3}$

Q.10.	The number of zeroes of a cubic polynomial is							
	A	more than 3	**B**	at most 3	**C**	only 3	**D**	more than 4
	ASSERTION AND REASONING							
	DIRECTION: A statement of **Assertion (A)** is followed by a statement of **Reason (R).** Choose the correct option. (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 and 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.							
Q.11.	Assertion(A):If one zero of polynomial $p(x) = (k^2 + 4)x^2 + 13x + 4k$ is reciprocal of other, then k=2. Reason(R): If $(x - a)$ is a factor of $p(x)$, then $p(a) = 0$ i.e., "a" is a zero of $p(x)$.							
	Questions of 2 marks each							
Q.12.	The quadratic polynomial $2x^2 - 3x + 1$ has zeroes as α and β. Now form a quadratic polynomial whose zeroes are 3α and 3β.							
Q.13.	If α and β are the zeroes of quadratic polynomial $2x^2 + 5x + k$, find the value of *k* such that $(\alpha + \beta)^2 - \alpha\beta = 24$.							
Q.14.	If α and β are the zeroes of the polynomial $f(x) = x^2 - 5x + k$ such that $\alpha - \beta = 1$, find *k*.							
Q.15.	If one zero of the polynomial $3x^2 - 8x + 2k + 1$ is three times the other then find the value of k.							
Q.16.	If (x – 2) is a factor of $x^3 + ax^2 + bx + 16$ and $a - b = 6$, find the values of 'a' and 'b'.							
	Questions of 3 marks each							
Q.17	If one zero of the polynomial $ax^2 + bx + c$ is double of the other, then show that $2b^2 = 9ac$.							
Q.18.	Find zeroes of the polynomial $3x^2 - 10x - 8$ and verify the relation between zeroes and coefficients.							
Q.19.	If α and β are the zeroes of the polynomial $p(x) = 5x^2 + 5x + 1$, then find the value of (i) $\alpha^2 + \beta^2$ (ii) $\alpha^{-1} + \beta^{-1}$.							
Q.20	If $x = \frac{3}{2}$ is a zero of $6x^2 - kx - 3$, then find k and the remaining zero.							
Q.21.	If the sum of the squares of the zeroes of the quadratic polynomial $x^2 - 8x + k$ is 40, find k.							
	Questions of 5 marks each							
Q.22.	If α and β are the zeroes of the polynomial $2y^2 + 7y + 5$, find the zeroes of the polynomial and also find the value of $3\alpha + 3\beta + \alpha^2 + \beta^2 + \alpha\beta$.							
Q.23.	If a and β are the zeroes of the polynomial $f(x) = x^2 + 2x - 8$, then find the value of (i) $\alpha^4 + \beta^4$ (ii) $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}$.							
	CASE STUDY QUESTION: An asana is a body posture, originally and still a general term for a sitting meditation pose, and later extended in hatha yoga and modern yoga as exercise, to any type of pose or position, adding reclining, standing, inverted, twisting, and balancing poses. In the figure, one can observe that poses can be related to representation of quadratic polynomial.							

	 	
Q.24.	Name the shape of the poses shown above.	
Q.25.	Find the zeroes of the quadratic polynomial $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$.	
Q.26.	Find the zeroes from the above graph and frame the quadratic polynomial.	
Q.27.	If the sum of the root is $-s$ and the product of the roots is $-\frac{1}{s}$, then form the quadratic polynomial.	

ANSWERS

Q.1.	D	**Q.2.**	A	**Q.3.**	B	**Q.4.**	A
Q.5.	D	**Q.6.**	C	**Q.7.**	A	**Q.8.**	C
Q.9.	A	**Q.10.**	B	**Q.11.**	b	**Q.12.**	$2x^2 - 9x + 9$
Q.13.	$k = \frac{-71}{2}$	**Q.14.**	$k = 6$	**Q.15.**	$\frac{5}{18}$	**Q.16.**	a=-2, b=-8
Q.18.	x=4 , x=-2/3	**Q.19.**	3/5 , -5	**Q.20.**	7, -1/3	**Q.21.**	12
Q.22.	-7/2, 5/2, -3/4	**Q.23.**	272, -9	**Q.24.**	parabola	**Q.25.**	Ans: $\frac{\sqrt{3}}{4}, \frac{-2}{\sqrt{3}}$
Q.26.	-2,4, $x^2 - 2x - 8$	**Q.27.**	$sx^2 - s^2x - 1$				

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