INDIAN SCHOOL AL WADI AL KABIR
Class X, Mathematics
M.C.Q & CASE STUDY – POLYNOMIALS

OBJECTIVE TYPE (1 Mark)

Q.1. The zeroes of the polynomial $x^2 - 3$ are

	A	$\sqrt{3}\ and\ \sqrt{3}$	**B**	$3\ and\ -3$	**C**	$\sqrt{3}\ and\ 3\sqrt{3}$	**D**	$\sqrt{3}\ and\ -\sqrt{3}$

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. The number of polynomials having zeroes as $-2\ and\ 5$ is

	A	1	**B**	2	**C**	3	**D**	More than 3

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

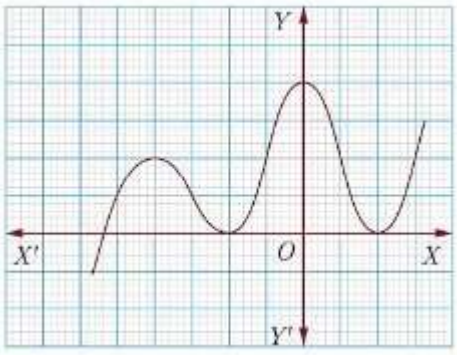
Q.7. If $p(x) = ax^2 + bx + c$ and $a + b + c = 0$, then one zero is

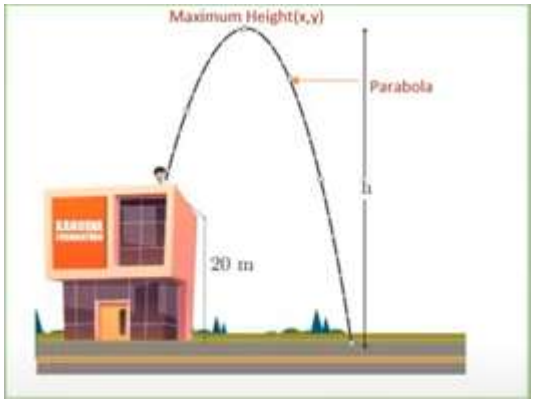
	A	$\frac{-b}{a}$	**B**	$\frac{c}{a}$	**C**	$\frac{b}{c}$	**D**	None of these

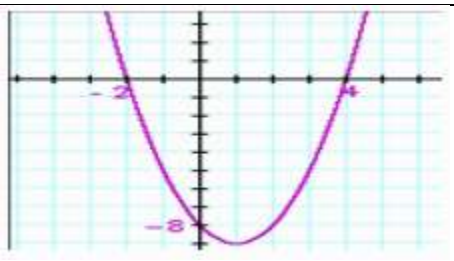
Q.8. If the product of the zeroes of $x^2 - 3kx + 2k^2 - 1$ is 7, then find the values of k are

	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.	Quadratic polynomial $2x^2-3x+1$ has zeroes as α *and* β. Now form a quadratic polynomial whose zeroes are 3α *and* 3β.							
	A	$2x^2+9x-9$	**B**	x^2-9x+9	**C**	$2x^2-9x+9$	**D**	x^2-3x+1
	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 $p(x)$.							
Q.12.	Assertion(A):The graph $y=f(x)$ as shown in the figure, for the polynomial $f(x)$. The number of zeroes of $f(x)$ is 3. Reason(R): The number of zeroes of the polynomials $f(x)$ is the number of points of which $f(x)$ cuts or touches the axes. 							
Q.13.	Assertion (A): $3-2\sqrt{5}$ is one zero of the quadratic polynomial then other zero will be $3+2\sqrt{5}$. Reason (R): Irrational zeroes(roots) always occurs in pairs.							

	Case study- based questions
	CASE STUDY QUESTION A: Lavanya throws a ball upwards, from a rooftop, which is 20 m above from ground. It will reach a maximum height and then fall back to the ground. The height of the ball from the ground at time t is h , which is given by $h = -4t^2 + 16t + 20$. 
Q.14.	What is the height reached by the ball after 1 second?
Q.15.	How long will the ball take to hit the ground?
Q.16.	What are the two possible times to reach the ball at the same height of 32 m?
Q.17.	Where is the ball after 5 seconds?
	CASE STUDY QUESTION B: 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.18.	Name the shape of the poses shown above.
Q.19.	Find the zeroes of the quadratic polynomial $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$.

Q.20.	 Find the zeroes from the above graph and frame the quadratic polynomial.
Q.21.	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.**	B	**Q.8.**	C
Q.9.	A	**Q.10.**	C	**Q.11.**	b	**Q.12.**	c
Q.13.	a	**Q.14.**	32 m	**Q.15.**	5 seconds	**Q.16.**	1 second, 3 seconds
Q.17.	0(at ground)	**Q.18.**	parabola	**Q.19.**	$\frac{-2}{\sqrt{3}}, \frac{\sqrt{3}}{4}$	**Q.20.**	$x^2 - 2x - 8$
Q.21.	$sx^2 - s^2x - 1$						

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