



INDIAN SCHOOL AL WADI AL KABIR

Class XI, Mathematics

COMPLEX NUMBERS WORKSHEET

OBJECTIVE TYPE (1 Mark)

Q.1.	What is the value of i^{99} ?							
	A	1	B	-1	C	i	D	-i
Q.2.	The conjugate of the complex number $\frac{3+2i}{1-i}$ is:							
	A	$\frac{1+5i}{2}$	B	$\frac{1-5i}{2}$	C	$\frac{5+i}{2}$	D	$\frac{5-i}{2}$
Q.3.	If $z = (1+i)$, then the value of z^4 is:							
	A	4	B	-4	C	2i	D	-2i
Q.4.	The modulus of the complex number $\frac{1-i}{1+i}$ is:							
	A	0	B	1	C	$\sqrt{2}$	D	2
Q.5.	The real part of the complex number $\frac{1}{1-2i}$ is:							
	A	$\frac{1}{2}$	B	1	C	$\frac{1}{5}$	D	$\frac{2}{5}$
Q.6.	The complex number z which satisfies the equation $ z-3i = z+3i $ lies on:							
	A	Real axis (x-axis)	B	Imaginary axis (y-axis)	C	Line $y = x$	D	Line $y = -x$
Q.7.	The multiplicative inverse of the complex number $-1+i\sqrt{3}$ is:							
	A	$\frac{-1-i\sqrt{3}}{10}$	B	$-1+i\sqrt{3}/4$	C	$-1+i\sqrt{3}$	D	$\frac{-1-i\sqrt{3}}{4}$
Q.8.	The standard form of the complex number $\frac{-3-i}{3+2i}$ is:							
	A	$-\frac{11+9i}{13}$	B	$\frac{11+9i}{13}$	C	$\frac{7+3i}{13}$	D	$\frac{-11+3i}{13}$

Q.9.	The multiplicative inverse of $(3 + 4i)$ is:							
	A	$(3 - 4i)$	B	$\frac{1}{5}$	C	$\frac{3 - 4i}{25}$	D	$\frac{3 - 4i}{5}$
Q.10.	If $ z = 2$ and $Z^2 = -4$ then z is equal to:							
	A	$2\sqrt{3} + 2i$	B	$-2\sqrt{3} + 2i$	C	$2\sqrt{2}i$	D	$-2\sqrt{2} - 2i$
Q.11.	The least positive integer n for which $\left(\frac{1+i}{1-i}\right)^n = 1$ is:							
	A	1	B	2	C	3	D	4
Q.12.	The value of $i^n + i^{n+1} + i^{n+2} + i^{n+3}$ is:							
	A	0	B	1	C	i	D	-1
Q.13.	If $(x + iy) = (1 + i)(1 + 2i)(1 + 3i)$, then $x^2 + y^2$ is equal to:							
	A	0	B	1	C	100	D	130
Q.14.	If z is a purely imaginary number, then which of the following is true?							
	A	$z = -\bar{z}$	B	$z = \bar{z}$	C	$z + \bar{z} = 0$	D	$z - \bar{z} = 0$
Q.15.	The square root of the complex number $8 - 6i$ is/are:							
	A	$3 - i$	B	$-3 + i$	C	$\pm(3 - i)$	D	$\pm(3 + i)$
Q.16.	$1 + i + i^2 + i^3 + \dots + i^{20}$							
	A	1	B	0	C	20	D	2
Q.17.	If $(a + ib)^2 = (x + iy)$, then $(a - ib)^2$ is equal to:							
	A	$(x + iy)$	B	$(x - iy)$	C	$(-x + iy)$	D	$(-x - iy)$
Q.18.	The value of i^{2026}							
	A	-1	B	1	C	-i	D	i

	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.19.	Assertion(A): The sum of two complex numbers (2+3i) and (4+5i) is 6+8i. Reason(R): Complex numbers are added by adding their real parts and imaginary parts separately.							
Q.20.	Assertion(A): For $z=3+4i$, $ z ^2=25$. Reason (R): $ z ^2=z \cdot z^{-}$, where z^{-} is the conjugate of z							
	ANSWERS							
	Q.1.	D	Q.2.	B	Q.3.	B	Q.4.	B
	Q.5.	C	Q.6.	A	Q.7.	D	Q.8.	D
	Q.9.	C	Q.10.	C	Q.11.	D	Q.12.	A
	Q.13.	C	Q.14.	C	Q.15.	C	Q.16.	A
	Q.17.	B	Q.18.	A	Q.19.	A	Q.20.	A
