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Sample Task Questions

Questions with Answer Keys MathonGo The point 'z' in Argand's plane moves such that $\operatorname{Re}\left(\frac{iz+1}{iz-1}\right) = 2$, then locus of z is-(1) straight line (2) circle hongo /// mathongo /// mathongo /// mathongo /// mathongo (3) ellipse (4) hyperbola Q2 mathongo /// mathongo /// mathongo /// mathongo /// mathongo If $z \neq i$ be any complex number such that $\frac{z-i}{z+i}$ is a purely imaginary number, then, $z + \frac{1}{z}$ is (1) any non-zero real number other than 1. (2) a purely imaginary number. (4) any non-zero real number Q3 mathongo $\frac{1}{2z+i}$ mathongo $\frac{1}{2z+i}$ mathongo $\frac{1}{2z+i}$ mathongo $\frac{1}{2z+i}$ mathongo $\frac{1}{2z+i}$ mathongo $\frac{1}{2z+i}$ mathongo Let $u = \frac{1}{z-ki}$, z = x + iy and k > 0. If the curve represented by Re (u) + Im (u) = 1 intersects the y-axis at points P and Q where PQ = 5 then the value of k is mathongo mathongo mathongo (1) mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo (4) 2 mathongo /// mathongo /// mathongo /// mathongo /// mathongo Q4 mathongo /// mathongo /// mathongo /// mathongo /// mathongo https://www.mathongo.com

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mathongo math Questions

Questions with Answer Keys

MathonGo

The solution of the equation |z| - z = 1 + 2i is mathongo /// mathongo /// mathongo

 $(1) \frac{3}{2}$ n+2inongo ///. mathongo ///. mathongo ///. mathongo

(3) 3 - 2i

(4) None of these // mathongo // mathongo // mathongo // mathongo // mathongo

Q5

For the complex number Z, the sum of all the solutions of $Z^2 + |Z| = \begin{pmatrix} Z \\ M \end{pmatrix}$ is equal to mathongo mathongo mathongo

///. mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo

Let z be a complex number satisfying the equation $\sqrt{2}|z-1|+i+z=0$. Find the number of such complex

07 mathongo /// mathongo /// mathongo /// mathongo /// mathongo

The locus of point z, where z = x + iy, satisfying the equation $\left| \frac{z + 5i}{z + 5i} \right| = 1$, is

mathongo /// mathongo /// mathongo

(1) The x - axis

(3) A circle passing through the origin // mathongo /// mathongo /// mathongo /// mathongo

(4) None of these

mathongo /// mathongo /// mathongo /// mathongo /// mathongo

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Questions with Answer Keys

MathonGo

/// mathongo /// mathongo /// mathongo If $Z = \cos\phi + i\sin\phi$ $\left(\forall \phi \in \left(\frac{\pi}{3}, \pi \right) \right)$, then the value of $\arg\left(Z^2 - Z \right)$ is equal to (where, $\arg(Z)$ represents the

argument of the complex number Z lying in the interval $(-\pi, \pi]$ and $i^2 = -1$)

(2)
$$\frac{3\phi}{2}$$
 nathongo /// mathongo /// mathongo /// mathongo /// mathongo ///

(3)
$$\frac{3}{2}(\phi - \pi)$$
 mathongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo ///

If z and w are two non-zero complex numbers such that
$$|zw| = 1$$
 and $arg(z) - arg(w) = \frac{\pi}{2}$, then the value of $5i\overline{z}w$ is equal to

$$\binom{\prime\prime\prime}{(1)-5}$$
 mathongo $\binom{\prime\prime\prime}{\prime\prime}$ mathongo $\binom{\prime\prime\prime}{\prime\prime}$ mathongo $\binom{\prime\prime\prime}{\prime\prime}$ mathongo $\binom{\prime\prime\prime}{\prime\prime}$ mathongo $\binom{\prime\prime\prime}{\prime\prime}$

// mathongo // ma

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Sample Task ngo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo **Questions with Answer Keys** MathonGo mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo If z and w are complex numbers satisfying z + iw = 0 and $amp(zw) = \pi$, then amp(w) is equal to (where, $amp(w) \in (-\pi, \pi]$ /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo (1) 4mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo $(2) \frac{}{4}$ $(3)_{\frac{1}{2}}$ $\binom{3\pi}{4}$ athongo /// mathongo /// mathongo /// mathongo /// mathongo Q12 Let α and β be the roots of $x^2 + x + 1 = 0$, then the equation whose roots are α^{2020} and β^{2020} is (1) $x^2 + x + 1 = 0$ /// mathongo /// mathongo /// mathongo /// mathongo $(2) x^2 - x - 1 = 0$ (3) $x^2 + x - 1 = 0$ $(4) x^2 - x + 1 = 0$ /// mathongo /// mathongo /// mathongo /// mathongo Q13 If $z = \frac{1}{2}(\sqrt{3} - i)$ and the least positive integral value of n such that $(z^{101} + i^{109})^{106} = z^n$ is k, then the value of $\frac{2}{5}k$ is equal tolongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo **Q14** The value of $\sum_{n=0}^{100} i^{n!}$ equals (where $i = \sqrt{-1}$) hongo /// mathongo /// mathongo (1) - 1 nathongo /// mathongo /// mathongo /// mathongo /// mathongo (3) 2 i + 95(4) 97+ihongo /// mathongo /// mathongo /// mathongo /// mathongo mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo https://www.mathongo.com

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9/21/23, 9:06 PM question_marks Sample Taskingo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo /// **Questions with Answer Keys** MathonGo If ω is the non-real cube root of unity, then the number of ordered pairs of integers (a, b), such that $|a\omega + b| = 1$, is equal to Q16 mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo The number of solutions of the equation $z^3 + \frac{3(\bar{z})^2}{|z|} = 0$ (where, z is a complex number) are 🖟 mathongo 🎹 mathongo 👭 mathongo 🎹 mathongo 👭 mathongo (2) 3(3) 6 mathongo /// mathongo /// mathongo /// mathongo /// mathongo Q17 mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo $z \in C$ satisfies the condition $|z| \ge 3$. Then the least value of $|z + \frac{1}{z}|$ is $|z| \le 1$ mathongo

/// 3mathongo /// mathongo // mathongo /// mathongo /// mathongo // mathongo // mathongo // mathongo // mathongo // mathon

mathongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo ///

Q18 mathongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo ///

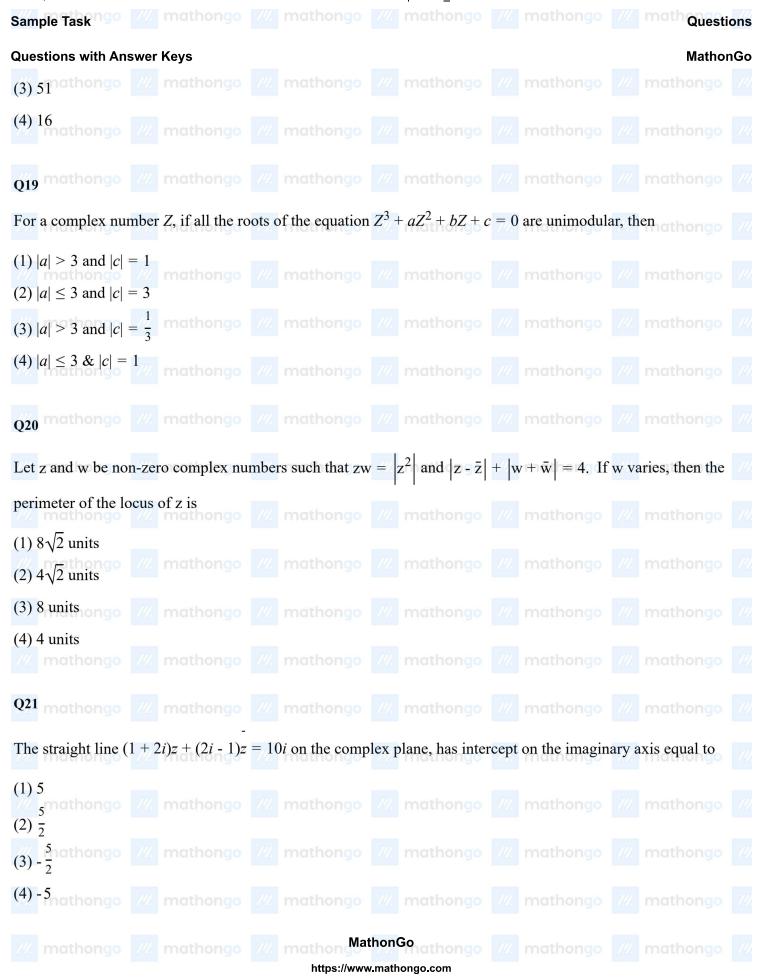
If m and M denotes the minimum and maximum value of |2z + 1|, where $|z - 2i| \le 1$ and $i^2 = -1$, then the value of $(M - m)^2$ is equal to

(1) 17 athongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo ///. mathongo ///.

(2) 34 mathongo /// mathongo /// mathongo /// mathongo /// mathongo ///

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Q24

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Questions with Answer Keys

MathonGo

If a complex number z lie on a circle of radius $\frac{1}{2}$ units, then the complex number $\omega = -1 + 4z$ will always lie on a circle of radius k units, where k is equal to

Let z be a complex number such that
$$\left| \frac{z-i}{z+2i} \right| = 1$$
 and $|z| = \frac{5}{2}$. Then the value of $|z+3i|$ is $|z-i|$ mathongo

$$(1)$$
 $\sqrt{10}$ thongo $///$ mathongo $///$ mathongo $///$ mathongo $///$ mathongo $///$

(2)
$$\frac{7}{2}$$
 mathongo /// mathongo /// mathongo /// mathongo /// mathongo ///

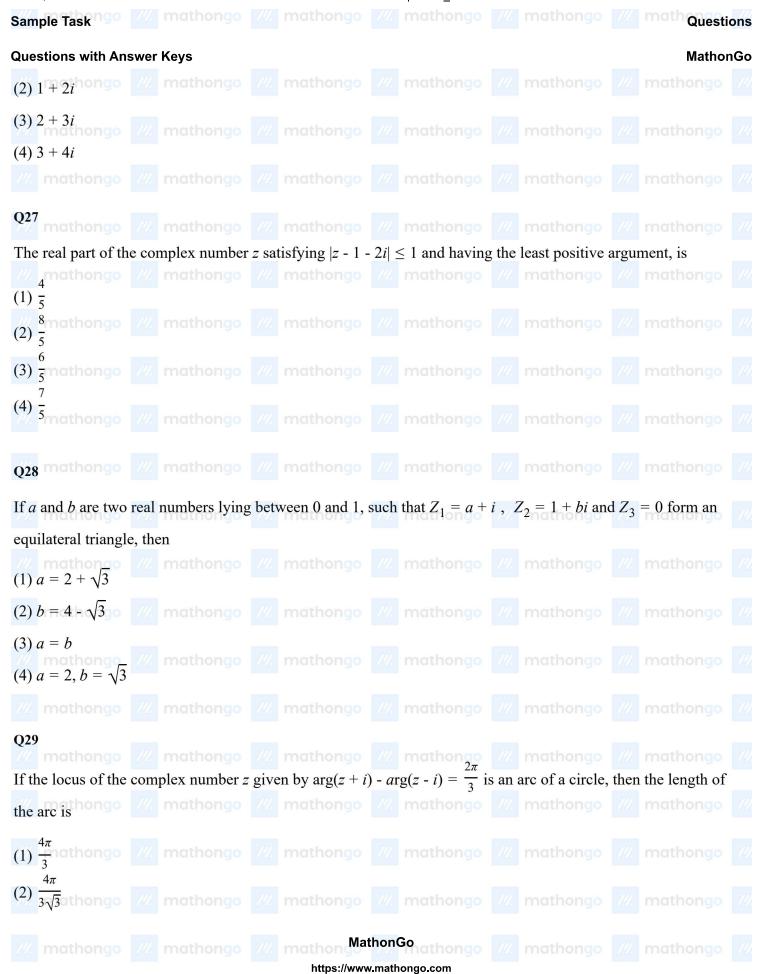
(3)
$$\frac{1}{4}$$
 /// mathongo ///

Let z and w be two complex numbers such that
$$w = z\bar{z} - 2z + 2$$
, $\left| \frac{z+i}{z-3i} \right| = 1$ and Re (w) has minimum value. Then,

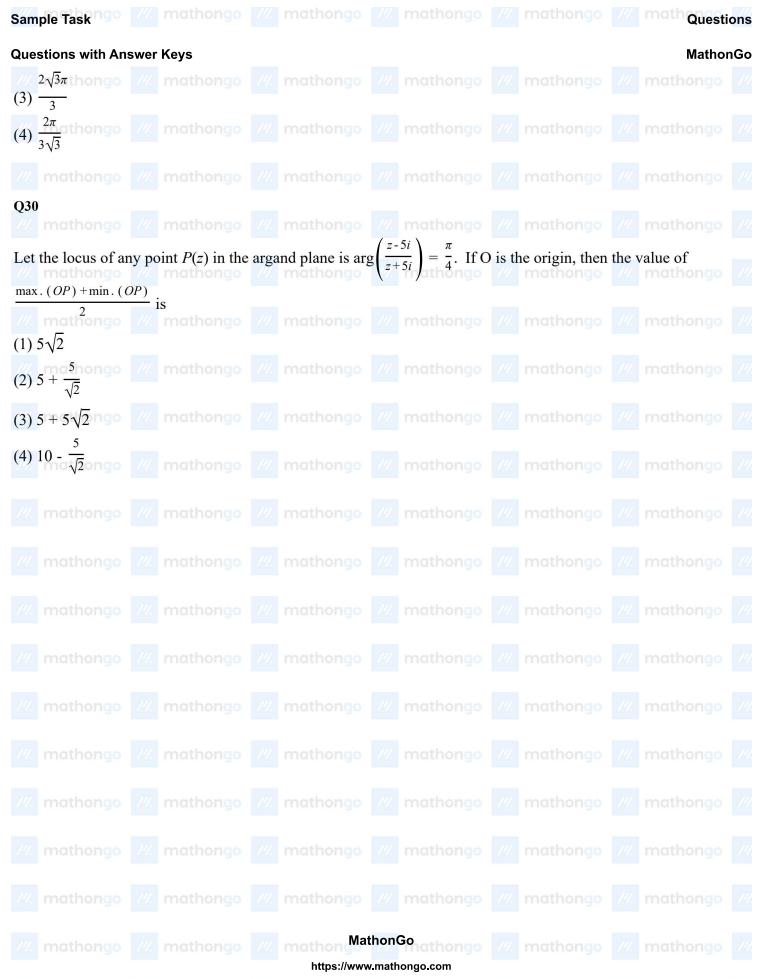
$$_{026}^{\prime\prime\prime}$$
 mathongo $^{\prime\prime\prime}$ mathongo $^{\prime\prime\prime}$ mathongo $^{\prime\prime\prime}$ mathongo $^{\prime\prime\prime}$ mathongo $^{\prime\prime\prime}$

The complex number z, satisfying the equation
$$z^3 = \bar{z}$$
 and $\arg(z+1) = \frac{\pi}{4}$ simultaneously, is (where, $i^2 = -1$)

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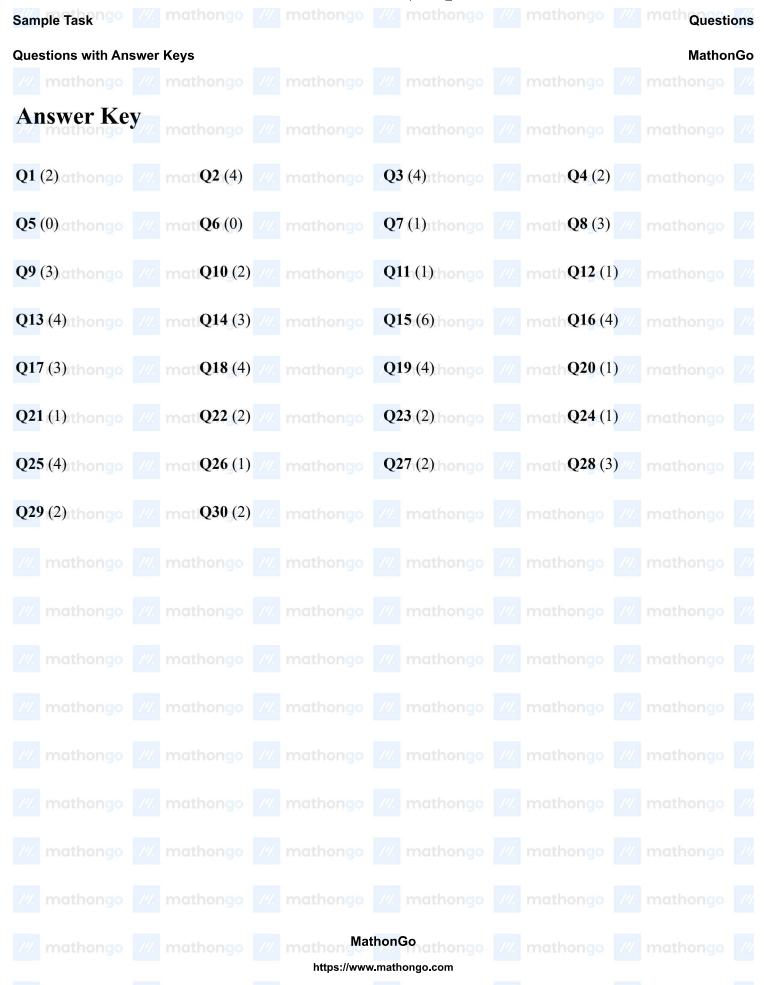


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