Assignment 9

The due date for submitting this assignment has passed. Due on 2018-10-03, 23:59 IST.
As per our records you have not submitted this assignment.

1) Let us consider two complex numbers as $z_1 = 2 + 3i$ and $z_2 = 1 - 5i$. Determine $z_1 \times z_2$
(a) $10 + 6i$
(b) $-13 + 7i$
(c) $17 - 7i$
(d) $10 - 7i$

No, the answer is incorrect.
Score: 0

Accepted Answers:
(c)

2) Let us consider two complex numbers as $z_1 = 2 + 3i$ and $z_2 = 1 - 5i$. Determine $\frac{z_1}{z_2}$
(a) $\frac{-13 + 13i}{\sqrt{26}}$
(b) $\frac{10 - 13i}{\sqrt{13}}$
(c) $\frac{-17 - 7i}{\sqrt{36}}$
(d) $\frac{-1 + i}{\sqrt{2}}$

No, the answer is incorrect.
Score: 0
Let us consider a complex function as $f(z) = (x^2 - y^2) + v(x, y)i$. If the function is analytic in nature what is the value of $v(x, y)$?

(a) $2x^2y^2$
(b) $-2xy$
(c) $x^2 + y^2$
(d) $2xy$

No, the answer is incorrect.
Score: 0

Which of the following conditions are to be satisfied for the complex function $f(z)$ $u(r, \theta) + v(r, \theta)i$ to be analytic in polar coordinate?

1. $\frac{\partial u}{\partial r} = \frac{\partial v}{\partial \theta}$
2. $\frac{\partial u}{\partial \theta} = -\frac{\partial v}{\partial r}$

(a) Only condition 1 is to be satisfied
(b) Only condition 2 is to be satisfied
(c) Both the conditions are to be satisfied
(d) None of the conditions is to be satisfied

No, the answer is incorrect.
Score: 0
Let us consider a complex function as \( f(z) = (y^3 - 3x^2y) + v(x,y)i \). If the function analytic in nature what is the value of \( v(x,y) \)?

(a) \( 2x^2y^2 \)
(b) \(-3xy^2\)
(c) \( x^3 - 3xy^2 \)
(d) \( 2xy \)

No, the answer is incorrect.
Score: 0
Accepted Answers: c

6) \( f(z) \) is an analytic function in a simply connected domain \( A \). \( C \) is a closed curve in six the domain \( A \). \( C_1 \) is any arbitrary curve in the domain \( A \) as shown in the figure. which of following conditions hold true?

1. \( \oint_C f(z) \, dz = 0 \)
2. \( \oint_{C_1} f(z) \, dz \) is path dependent
3. \( f(z) \) has an anti-derivative.

(a) Only 1 and 2 are correct
(b) Only 1 and 3 are correct
(c) Only 2 and 3 are correct
(d) All of the above are correct

No, the answer is incorrect.
Score: 0
Accepted Answers: b
Evaluate the integral $\int_{C} (z - 2)^3 \, dz$, where the path is an arbitrary contour between the limits of integration?

(a) $0$
(b) $e + \frac{1}{e}$
(c) $\frac{1+i}{\pi}$
(d) $1.5$

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

Evaluate the integral $\oint_{C} \cos z \, dz$, where $C$ is the unit circle $|z| = 1$

(a) $0$
(b) $e + \frac{1}{e}$
(c) $\frac{1+i}{\pi}$
(d) $1.5$

No, the answer is incorrect.
Score: 0
Accepted Answers:
a

Let us consider a complex number $z = x + iy$ and a complex function $f(z) = \frac{a}{z} + bz$.

What is the correct expression of $\overline{f(z)}$ in terms of $x$ and $y$?

(a) $(ax + bx^2 + by^2) + i(ay + 2bxy)$
(b) $(ax/\sqrt{x^2 + y^2}) + bx^2 - by^2 + i(ay/\sqrt{x^2 + y^2} - 2bxy)$
(c) $(ax/\sqrt{x^2 + y^2}) + bx^2 - by^2 + i(ay/\sqrt{x^2 + y^2} + 2bxy)$
(d) $(ax + bx^2 - by^2) - i(ay + 2bxy)$
Let us consider a complex number $z = x + iy$ and a complex function $f(z) = az + bz$.

What is the correct expression of $f(z)$ in terms of $x$ and $y$?

(a) $(ax + bx^2 + by^2) + i(ay + 2bxy)$
(b) $(ax + bx^2 + by^2) + i(ay - 2bxy)$
(c) $(ax + bx^2 - by^2) + i(ay + 2bxy)$
(d) $(ax + bx^2 - by^2) - i(ay + 2bxy)$