Advanced Engineering Mathematics - Unit 4 - Week 3

Assessment-3

The due date for submitting this assignment has passed.

Due on 2019-02-20, 23:59 IST.

3) Let $\gamma$ be a closed path (positively oriented) and let $z_0$ be any point outside $\gamma$. Then the winding number $n(\gamma, z_0)$ of $\gamma$ about $z_0$ is equal to

No, the answer is incorrect.
Score: 0
Accepted Answers: [0] 2 points

2) Let $\gamma$ be a circle and let $z'$ be a point in the interior of the circle. If $\gamma$ is traversed twice in the clockwise direction then the winding number $n(\gamma, z')$ is

No, the answer is incorrect.
Score: 0
Accepted Answers: [−1] 2 points

4) The maximum modulus of $f(z) = 2z + 5i$ on the region $|z| \leq 2$ is

No, the answer is incorrect.
Score: 0
Accepted Answers: [1] 0 points

5) The radius of convergence of the power series $\sum_{n=0}^{\infty} \frac{|a_n|^2}{(2n)!} z^n$ is

No, the answer is incorrect.
Score: 0
Accepted Answers: [0] 2 points

6) The maximum modulus of $f(z) = \cos z$ on the region $|z| \leq \pi$ is

No, the answer is incorrect.
Score: 0
Accepted Answers: [0] 0 points
4. The circle of convergence of the power series \( \sum_{n=0}^{\infty} (1 + \frac{n}{2}) z^n \), is

\[ |z| = \frac{1}{\frac{1}{2}} \]

\[ |z| = \frac{1}{2} \]

\[ |z| = 1 \]

\[ |z| = 2 \]

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

5. The analytic function \( f(z) \) represented by the power series \( \sum_{n=0}^{\infty} \frac{1}{n} z^n \) inside its circle of convergence is

\[ f(z) = e^z \]

\[ f(z) = \frac{1}{z} \]

\[ f(z) = z \]

\[ f(z) = z^2 \]

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

6. The Taylor series expansion of the function \( f(z) = \frac{1}{1-z} \) about \( z = 0 \), is given by

\[ f(z) = \frac{1}{2} \sum_{n=0}^{\infty} (-1)^n z^n \]

\[ f(z) = \frac{1}{2} \sum_{n=0}^{\infty} (\frac{1}{2})^n z^n \]

\[ f(z) = \frac{1}{2} \sum_{n=0}^{\infty} (-1)^n z^n \]

\[ f(z) = \frac{1}{2} \sum_{n=0}^{\infty} (\frac{1}{2})^n z^n \]

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

7. Let \( f(z) = \sum_{n=1}^{\infty} \frac{(-1)^n}{n} z^n \), \( |z| < 1 \) then the radius of convergence of the series \( \sum_{n=1}^{\infty} k(n-1)z^{n-1} \) and \( \sum_{n=1}^{\infty} z^n \) are, respectively

\[ \frac{1}{2}, 1 \]

\[ \frac{1}{2}, 1 \]

\[ \frac{1}{2}, 1 \]

\[ \frac{1}{2}, 1 \]

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

8. The radius of convergence of the Taylor series expansion of the function \( f(z) = \frac{1}{1-z} \) about \( z = 0 \), is equal to

\[ \frac{1}{2} \]

\[ \frac{1}{2} \]

\[ \frac{1}{2} \]

\[ \frac{1}{2} \]

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