

MTH381

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1. Fourier series uses which domain representation of signals?

Time domain representation

--->> Frequency domain representation

Both A and B

Neither depends on the situation of A and B

2. The singularity of  $f(z) = \frac{z+3}{(z-1)(z-2)}$  are

$(z=1, 3)$

$(z=1, 0)$

--->>  $(z=1, 2)$

$(z=2, 3)$

3. Evaluate the residue of  $f(z) = \frac{1+e^z}{\sin z + z \cos z}$  at the pole where  $(z=0)$ .

$(0)$

--->> 1

$(-1)$

$(\pm 1)$

4. What is an integral curve along a simple closed curve called?

Multiple Integral

Jordan Integral

--->> Countour Integral

Connected Integral

5. Find the pole of this function  $f(z) = \frac{z-2}{z^2} \sin \frac{1}{z-1}$

--->> 2

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1

$$\sqrt{-1}$$

6. Find the Jacobian of  $p, q, r$  with respect to  $x, y, z$  given  $(p=x+y+z, q=y+z)$  and  $(r=z)$

$$\sqrt{0}$$

2

$$\sqrt{-1}$$

--->> 1

7. Find the  $\lim_{z \rightarrow 2+3i} [3x+i(2x-4y)]$

$$\sqrt{16+6i}$$

$$\sqrt{16-6i}$$

--->>  $\sqrt{6+16i}$

$$\sqrt{6-16i}$$

8. What is the Laplace transform of the function  $f(t)=t$  where  $(t \geq 0)$ .

$$\sqrt{s}$$

$$\sqrt{\frac{1}{s}}$$

--->>  $\sqrt{\frac{1}{s^2}}$

$$\sqrt{\frac{1}{s^3}}$$

9. The Stokes theorem uses which of the following operation?

Divergence

Gradient

--->> Curl

Laplacian

10. Given that  $(u=\frac{yz}{x})$ ,  $(v=\frac{xz}{y})$  and  $(w=\frac{xy}{z})$ , then what is the value of  $(\frac{\partial(u, v, w)}{\partial(x, y, z)})$  ?

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2

$\sqrt{-2}$

--->> 4

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