DSSSB TGT PART(B)

MATHS

RIEMANN INTEGRATION

Part -2

LIVE 08/10/2024 08:00 AM

1. The real part of $e^{e^{i\theta}}$ is

$e^{e^{i\theta}}$ का वास्तविक भाग है

a) $e^{\cos\theta}\cos\cos\theta$

b) $e^{\cos\theta}\cos\sin\theta$

c) $e^{\sin\theta}\cos\cos\theta$

d) $e^{\sin\theta}\cos\sin\theta$

2. Period of $\coth\ x$ **is**

$coth\ x$ की अवधि है

a) $\frac{\pi}{2}i$

b) $2\pi i$

c) π

d) None of these

3. The value of $\cosh^{-1}(\sqrt{5})$ **is**

$\cosh^{-1}(\sqrt{5})$ का मान है

a) $\log(\sqrt{5}+2)$

b) $\log(\sqrt{5}-2)$

c) $\log(\sqrt{2}+5)$

d) $\log(\sqrt{2}-5)$

4. Which one of the following is incorrect?

इनमें से कौन सा निम्नलिखित गलत है?

a) $\cosh\ \theta = \frac{e^{\theta}+e^{-\theta}}{2}$

b) $\sin\ \theta = \frac{e^{i\theta}-e^{-i\theta}}{2i}$

c) $\sinh\ \theta = \frac{e^{i\theta}-e^{-i\theta}}{2}$

d) $\cos\ \theta = \frac{e^{i\theta}+e^{-i\theta}}{2}$

5. $\cos(x + iy)$ **is equal to**

$\cos(x + iy)$ **बराबर है**

a) $\cos x \cos y - i \sin x \sin y$

b) $\cos x \cosh y + i \sin x \sinh y$

c) $\cos x \cosh y - i \sin x \sinh y$

d) $\cos x \cosh y - i \sin x \sin y$

6. The value of $\sinh(\alpha + i\beta)$ **is equal to**

मान $\sin h(\alpha + i\beta)$ **का मान बराबर है**

a) $\sinh \alpha \cos \beta - i \cosh \alpha \sin \beta$

b) $\sinh \alpha \cos \beta + i \cosh \alpha \sin \beta$

c) $\sin \alpha \cosh \beta + i \cos \alpha \sinh \beta$

d) $\sin \alpha \cosh \beta - i \cos \alpha \sinh \beta$

Note

$\sinh(ix) = i\sin x$

$\cosh(ix) = \cos x$

$\tanh(ix) = i\tan x$

$\sin(A+iB)$.

$\sinh\alpha \cdot \cosh(iB) + \cosh\alpha \cdot \sinh(iB$

$\sinh\alpha \cos B + i\cosh\alpha \cdot \sin B$.

7. Which one of the following is incorrect?

निम्न में से कौन सा गलत है?

a) $\text{cosec}\,(ix) = -i\text{cosech}\,x$

b) $\tan(ix) = i\tanh x$

c) $\sec(ix) = \text{sech}\,x$

d) $\cot(ix) = i\coth x$

8. If $\cos(x+iy) = k(\cos x + i\sin x)$, **then value of** $k\sin x$ **is**

यदि $\boldsymbol{\cos(x+iy) = k(\cos x + i\sin x)}$ **है, तो** $\boldsymbol{k\sin x}$ **का मान है**

$\cos x \cdot \cos iy - \sin x \cdot \sin iy = k\cos x + ik\sin x$

$\downarrow$

$\cos x \cdot \cosh y - i\sin x \cdot \sinh y = k\cos x + ik\sin x$

a) $\cos x \cosh y$

b) $-\cos x \cosh y$

c) $-\sin x \sinh y$

d) $\sin x \sinh y$

Notes

Hyperbolic fun^n	Domain	Range.
$\sinh x$	R	R
$\cosh x$	R	$[1, \infty]$
$\tanh x$	R	$(-1, 1)$
$\coth x$	$R-\{0\}$	$R-\{0\}$
$\operatorname{sech} x$	R	$(0, 1]$
$\operatorname{cosech} x$.	$R-\{0\}$	$R-[-1, 1]$

#Inverse hyperbolic function

Inverse hyperbolic fun^n	Domain	Range
$\sinh^{-1}x$	R	R
$\cosh^{-1}x$	$[1,\infty)$	$(0,\infty)$
$\tanh^{-1}x$	$(-1,1)$	R
$\coth^{-1}x$	$R-\{0\}$	$R-\{0\}$
$\operatorname{sech}^{-1}x$	$(0,1]$	$[0,\infty)$
$\operatorname{cosech}^{-1}x$	$R-[-1,1]$	$R-\{0\}$

9. Range of $\operatorname{sech} x$ **is**

***sech x* की सीमा है**

a) $(-1,1)$ ⟶ tanh y

b) $R - [-1,1]$ → Cosech x

c) R_0

d) $(0,1]$ → Sech x

10. Range of $\coth^{-1} x$ **is**

$cot\,h^{-1}\,x$ की सीमा है

a) $(-1,1]$

b) R

c) R_0

d) $[0,\infty)$

For Practice

① The Domain of funⁿ $f(x) = \frac{1}{\sqrt{|x| - x}}$

(a) $(0, \infty)$

(b) $(-\infty, 0)$

(c) $(-\infty, \infty)$

(d) $(-\infty, \infty) - \{0\}$

$|x| - x > 0$

$|x| > x$

$x \in (-\infty, 0)$

Ques if $f: R \to R$ is defined by $f(x) = |x|$.

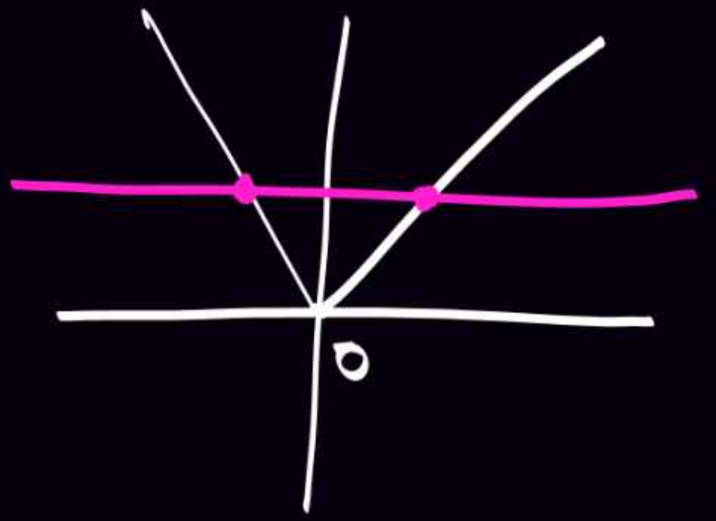
(a) $f^{-1}(x) = \frac{1}{|x|}$

(b) $f^{-1}(x) = -x$

(c) $f^{-1}(x) = \frac{1}{x}$

(d) $f^{-1}(x)$ is does not exist.

many-one.



↓

one-one / onto.

एकैकी / आच्छादक.

Qu Square root of $-7+24i$.

(a) $\pm(-3+4i)$

(b) $\pm(4+3i)$

(c) $\pm(3+4i)$ //

(d) $\pm(-4+3i)$.

$\sqrt{576+49}$

$\sqrt{625}$

25

$+(-7)$ $\quad -(-7)$

$\sqrt{\frac{18}{2}} + \sqrt{\frac{32}{2}}\, i$

$\pm(3+4i)$ //

Que No of real root of the Equ^{n}.

i.e. $|x|^2 - 9|x| + 17 = 0$.

(a) 0

(b) 1

(c) 2

(d) 4.

$\downarrow$

$x^2 - 9|x| + 17 = 0$

$2 + 2 = 4$