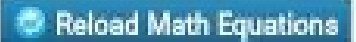


PEN PALS

Mth632 - Quiz 3 solved 2021

Let z_0 and z_1 be two points in simply connected domain D
and f be an analytic complex valued function in D and C be contour by joining z_0 and z_1 then

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 Reload Math Equations



$$\int_{z_0}^{z_1} f(s) ds = F(z_1) + F(z_0)$$



$$\int_{z_0}^{z_1} f(s) ds = F(z_0) + F(z_1)$$



$$\int_{z_0}^{z_1} f(s) ds = F(z_0) - F(z_1)$$



$$\int_{z_0}^{z_1} f(s) ds = F(z_1) - F(z_0)$$

[Click to Save Answer & Move to Next Question](#)

Using Cauchy integral formula to compute the value of integral

$$\int_C \frac{z-2}{z+i} dz \text{ where } f(z) = z-2 \text{ and } z_0 = -i$$

Select the correct option

[Reload Math Equations](#)



$$2\pi(1-2i)$$



$$2\pi(-1+2i)$$



$$2\pi(-1-2i)$$



$$2\pi(1+2i)$$

[Click to Save Answer & Move to Next Question](#)

Evaluate $\frac{1}{2\pi} \int_0^{2\pi} \exp\left(\frac{i\pi}{3} + 5e^{i\theta}\right) d\theta$ if $f(z) = \exp(z)$ then we get,

Select the correct option

[Reload Math Equations](#)



$$\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}$$



$$\sin \frac{\pi}{3} + i \cos \frac{\pi}{3}$$



$$\cos \frac{\pi}{3} - i \sin \frac{\pi}{3}$$



$$\cos \frac{\pi}{3} + \sin \frac{\pi}{3}$$

[Click to Save Answer & Move to Next Question](#)

Let C_1 and C_2 be two simple closed contours with positively oriented s , f C_1 is exterior and C_2 is an interior. If $f(z)$ is analytic in domain

Select the correct option

<input checked="" type="radio"/>		$\int_{C_1} f(z) dz = \int_{C_2} f(z) dz$
<input type="radio"/>		$\int_{C_1} f(z) dz > \int_{C_2} f(z) dz$
<input type="radio"/>		$\int_{C_1} f(z) dz \neq \int_{C_2} f(z) dz$
<input type="radio"/>		$\int_{C_1} f(z) dz < \int_{C_2} f(z) dz$

Q 10 (Start time: 05:00:12 PM, 13 August 2021)

C_1, C_2 be two simple closed contours with positively oriented s. t C_1 is exterior and C_2 is an interior. If $f(z)$ is analytic in domain

Select option



$$\int_{C_1} f(z) dz = \int_{C_2} f(z) dz$$

$$\int_{C_1} f(z) dz > \int_{C_2} f(z) dz$$

$$\int_{C_1} f(z) dz \neq \int_{C_2} f(z) dz$$

$$\int_{C_1} f(z) dz < \int_{C_2} f(z) dz$$

Question # 7 of 10 (Start time: 04:58:14 PM, 13 August 2021)

Tot

Each simple closed curve C divides the plane into interior and exterior domains where one is bounded and other is unbounded. This statement is of

Select the correct option



Green's Theorem



Cauchy Theorem



Cauchy Goursat Theorem



Jordan Curve Theorem



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Question # 10 of 10 (Start time: 04:57:35 PM, 13 August 2021)

Total Marks: 1

Evaluate $\int_C f(z) dz$ where $C : z(t) = e^{it}$ for $0 \leq t \leq \pi$ and $f(z) = 1/z$

Select the correct option

[Reload Math Equations](#) $i\pi$ $-2\pi i$ $2\pi i$ $-\pi i$ 

Question # 9 of 10 (Start time: 04:56:23 PM, 13 August 2021)

Total Marks: 1

Each simple closed curve C divides the plane into two domains (connected open sets). One of which is bounded and is called _____ of C .

Select the correct option



interior



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exterior

Question # 6 of 10 (Start time: 04:53:27 PM, 13 August 2021)

Total Marks: 1

Using Cauchy integral formula to compute the value of integral

$$\int_C \frac{z-2}{z+i} dz \text{ where } f(z) = z-2 \text{ and } z_0 = -i$$

Select the correct option

[Reload Math Equations](#)

$2\pi(-1 + 2i)$

$2\pi(1 + 2i)$

$2\pi(-1 - 2i)$

$2\pi(1 - 2i)$

[Go to the previous question](#)

Question # 7 of 10 (Start time: 04:54:55 PM, 13 August 2021)

Total Marks: 1

Mathematically, the functions in Green's theorem will be

Select the correct option



Continuous derivatives



Discrete derivatives



Discrete partial derivatives



Continuous partial derivatives

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Click on Correct Answer to Move to Next Question

Question # 8 of 10 (Start time: 04:55:37 PM, 13 August 2021)

Total Marks: 1

A curve is said to be if it is constructed by joining finitely many smooth curves end to end

Select the correct option

 disconnected contour continuous discontinuous

Evaluate the integral $\int_C f(z) dz$ where $C: z(t) = e^{it}$ for $0 \leq t \leq \pi$ and $f(z) = 1/z^2$

Select the correct option

[Reload Math Equations](#)

$1 - e^{-i\pi}$



$1 + e^{-i\pi}$

$1 - e^{i\pi}$

$1 + e^{i\pi}$

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Question # 4 of 10 (Start time: 04:52:17 PM, 13 August 2021)

Total Marks: 1

$$\int_C \frac{f(z)}{(z+1)^4} dz \text{ where } z = e^{2z} \text{ then this integral is equal to}$$

Select the correct option

[Reload Math Equations](#)

$$\frac{\pi i}{3!} f^{(3)}(1)$$



$$\frac{2\pi i}{3!} f^{(3)}(1)$$



$$\frac{\pi i}{3!} f^{(3)}(-1)$$



$$\frac{2\pi i}{3!} f^{(3)}(-1)$$

[Click to Show Answer & Move to Next Question](#)

If the interior of every simple closed contour C is contained in the domain D , then domain is said to be....

Select the correct option



None of above



Unbounded



Disconnected



Simple connected



Question # 6 of 10 (Start time: 04:11:08 PM, 13 August 2021)

Total Marks: 1

If C is positively oriented unit circle i.e. $\{C: |z|=1\}$ then

$$\int_C \frac{e^{2z}}{z^3} dz$$

is

Select the correct option

[Reload Math Equations](#) $4\pi i$ $2\pi i$ $6\pi i$ $3\pi i$ [Click to Save Answer & Move to Next Question](#)

Question # 1 of 10 (Start time: 04:50:03 PM, 13 August 2021)

Total Marks: 1

If function f is continuous in simple connected domain D and $\int_C f(z)dz$ for every closed contour C in D , then f is analytic in D .

This statement is of:

Select the correct option

[Reload Math Equations](#)



Green's Theorem



Morera's Theorem



Cauchy Goursat Theorem



Cauchy theorem

Question # 2 of 10 (Start time: 04:50:53 PM, 13 August 2021)

Total Marks: 1

If C is simple closed contour with positively oriented such that fixed complex value z_0 lies interior to C , then for integer $n \neq 1$ we have,

$$\int_C \frac{1}{(z - z_0)^n} dz =$$

Select the correct option

[Reload Math Equations](#)

0

 πi 

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 $-2\pi i$  $2\pi i$ [Click to Solve/Answer/Email to/Post/Get/Code!](#)

Question # 2 of 10 (Start time: 04:04:16 PM, 13 August 2021)

Total Marks: 1

Evaluate $\int_C f(z)dz$ where $C : z(t) = e^{it}$ for $0 \leq t \leq \pi$ and $f(z) = 1/z$

Select the correct option

[Reload Math Equations](#)

$-2\pi i$

$-\pi i$

$2\pi i$

$i\pi$

[Click to Save Answer & Move to Next Question](#)

Evaluate the integral $\int_C f(z)dz$ where $C : z(t) = e^{it}$ for $0 \leq t \leq \pi$ and $f(z) = 1/z^2$

Select the correct option

 Reload Math Equations



$1 + e^{i\pi}$



$1 - e^{-i\pi}$



$1 - e^{i\pi}$



$1 + e^{-i\pi}$

Question # 7 of 10 (Start time: 04:11:48 PM, 13 August 2021)

Total Marks: 1

Consider contour $C : z(t) = e^{it} = \cos t + i \sin t$ be counter clockwise where $-\pi/2 \leq t \leq \pi/2$ then the integral

$$\int_C \bar{z}(t) dz =$$

Select the correct option

[Reload Math Equations](#) $-\pi$ π $-i\pi$ $i\pi$

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[Click to Save Answer & Move to Next Question](#)

Question # 3 of 10 (Start time: 10:55:08 AM, 13 August 2021)

Using Cauchy integral formula to compute the value of integral

$$\int_C \frac{z-2}{z+i} dz \text{ where } f(z) = z-2 \text{ and } z_0 = -i$$

Select the correct option

<input type="radio"/>	$2\pi(-1 - 2i)$
<input type="radio"/>	$2\pi(1 - 2i)$
<input type="radio"/>	$2\pi(1 + 2i)$
<input type="radio"/>	$2\pi(-1 + 2i)$

Question # 6 of 10 (Start time: 11:05:38 AM, 13 August 2021)

If C is positively oriented unit circle i.e. $\{C: |z|=1\}$ then

$$\int_C \frac{e^{2z}}{z^3} dz$$

is

Select the correct option

- | | |
|-----------------------|----------|
| <input type="radio"/> | $3\pi i$ |
| <input type="radio"/> | $2\pi i$ |
| <input type="radio"/> | $6\pi i$ |
| <input type="radio"/> | $4\pi i$ |

Evaluate $\int_0^{2\pi} \sin\left(\frac{\pi}{4} + 3e^{i\theta}\right) d\theta$ if $f(z) = \sin z$

$$2\pi$$

$$\sqrt{2\pi}$$

$$\frac{\pi}{\sqrt{2}}$$

$$\frac{\pi}{2}$$

Click to Save Answer

Question # 3 of 10 (Start time: 04:07:55 PM, 13 August 2021)

Total Marks: 1

Evaluate $\int_C f(z)dz$ where $C : z(t) = (x + iy)t$ for $a \leq t \leq b$ and $f(z) = \frac{1}{z}$

Select the correct option

[Reload Math Equations](#)

$$\ln b - \ln a$$



$$\frac{(\ln a)}{(\ln b)}$$



$$\ln b + \ln a$$



$$(\ln a)(\ln b)$$

[Click to Save Answer & Move to Next Question](#)

Question # 9 of 10 (Start time: 04:14:00 PM, 13 August 2021)

Total Marks: 1

If function f is continuous in simple connected domain D and $\int_C f(z)dz$ for every closed contour C in D , then f is analytic in D .

This statement is of:

Select the correct option

[Reload Math Equations](#)



Cauchy Goursat Theorem



Cauchy theorem



Morera's Theorem



Green's Theorem

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Question # 8 of 10 (Start time: 04:13:18 PM, 13 August 2021)

Total Marks: 1

Morera's Theorem is the converse of ...

Select the correct option

- | | |
|-----------------------|--------------------------|
| <input type="radio"/> | Guass Mean value Theorem |
| <input type="radio"/> | Cauchy Goursat Theorem |
| <input type="radio"/> | De Movire's theorem |
| <input type="radio"/> | Green's Theorem |
- 

[Click to Save Answer & Move to Next Question](#)

Question # 2 of 10 (Start time: 04:06:45 PM, 13 August 2021)

Let $f(t)$ be continuous function on contour C and L be length of C . For all t in contour C , $|f(t)| \leq M$ then

Select the correct option

[Reload Ma](#)

$$\left| \int_C f(t) dt \right| > ML$$



$$\left| \int_C f(t) dt \right| < ML$$



$$\left| \int_C f(t) dt \right| \leq ML$$



$$\left| \int_C f(t) dt \right| \geq ML$$

Question # 6 of 10 (Start time: 04:11:44 PM, 13 August 2021)

Total Marks: 1

If $f(z)$ is an analytic function in domain D then for $n \geq 0$ where n is a positive integer,

Select the correct option

[Reload Math Equations](#)

None of above

 $f^{(n)}(z)$ is analytic in disconnected D  $f^{(n)}(z)$ is not analytic in simple connected D  $f^{(n)}(z)$ is an analytic in simple connected D [Click to Save Answer & Move to Next Question](#)

A domain D that is not simply connected is...

Select the correct option



multiply connected



doubly connected



none of above



triply connected

PM, 13 August 2021)

ion and C and $-C$ be the contours with same geometrical represent

$$\int_C f(-z) dz$$

$$-\int_C f(z) dz$$



$$\int_C f(z) dz$$

$$-\int_{-C} f(z) dz$$

Question # 2 of 10 (Start time: 04:04:16 PM, 13 August 2021)

Total Marks: 1

Evaluate $\int_C f(z)dz$ where $C : z(t) = e^{it}$ for $0 \leq t \leq \pi$ and $f(z) = 1/z$

Select the correct option

[Reload Math Equations](#) $-2\pi i$ $-\pi i$ $2\pi i$ $i\pi$ [Click to Save Answer & Move to Next Question](#)

Question # 1 of 10 (Start time: 04:03:16 PM, 13 August 2021)

Total Marks: 1

Let α lies in the interior of contour C and
$$P_n(z) = a_n z^n + a_{n-1} z^{n-1} + a_{n-2} z^{n-2} + \dots + a_1 z + a_0 z^0$$

then the value of $\int_C \frac{P_n(z)}{z - \alpha} dz$ is ... when $n = 3$

Select the correct option

[Reload Math Equations](#)

$2\pi i P_n(\alpha)$



$2\pi P_n(\alpha)$



$2\pi P_3(\alpha)$



$2\pi i P_3(\alpha)$

[Click to Save Answer & Move to Next Question](#)

A domain D that is not simply connected is...

Select the correct option



none of above



doubly connected



triplly connected



multiply connected

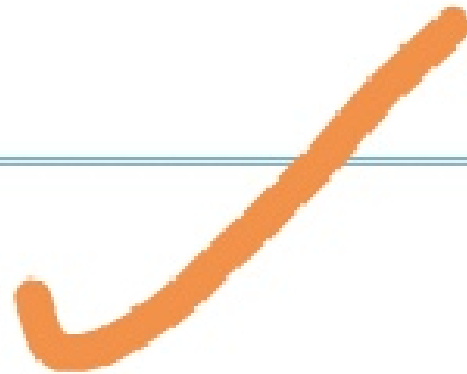


Question # 9 of 10 (Start time: 04:02:31 PM, 13 August 2021)

Total Marks: 1

A curve C is said to be a contour if it is constructed by joining finitely many smooth curves end to end.

Select the correct option

 False True[Click to Save Answer & Move to Next Question](#)

ntours with same geometrical representation but opposite in direction. Then $\int_{-C} f(z)dz =$

[Reload Math Equations](#)

$$\int_C f(-z)dz$$

$$\int_C f(z)dz$$

$$-\int_C f(z)dz$$



$$-\int_{-C} f(z)dz$$

Question # 2 of 10 (Start time: 10:53:24 AM, 13 August 2021)

Total Marks:

If $f(z)$ is complex valued function and C and $-C$ be the contours with same geometrical representation but opposite in direction. Then $\int_C f(z) dz =$

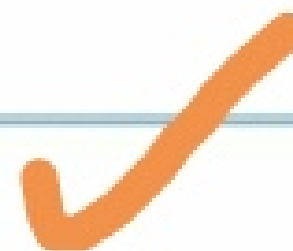
Select the correct option

[Revised Math Equations](#)

$$\int_C f(-z) dz$$

$$\int_C f(z) dz$$

$$-\int_C f(z) dz$$



$$-\int_C f(z) dz$$

Question # 3 of 10 (Start time: 10:55:08 AM, 13 August 2021)

Using Cauchy integral formula to compute the value of integral

$$\int_C \frac{z-2}{z+i} dz \text{ where } f(z) = z-2 \text{ and } z_0 = -i$$

Select the correct option



$$2\pi(-1 - 2i)$$



$$2\pi(1 - 2i)$$



$$2\pi(1 + 2i)$$




$$2\pi(-1 + 2i)$$

Question # 1 of 10 (Start time: 10:51:36 AM, 13 August 2021)

If the function $f(z)$ is analytic in domain D and simple connected contour C lies in D then

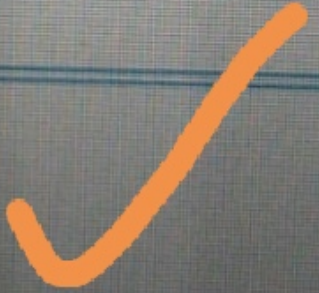
Select the correct option

- | | | |
|----------------------------------|---|----------------------------|
| <input checked="" type="radio"/> |  | $\int_C f(z) dz = 0$ |
| <input type="radio"/> | | $\int_C f(-z) dz = 0$ |
| <input type="radio"/> | | $\int_C f(\bar{z}) dz = 0$ |
| <input type="radio"/> | | $\int_C f(z') dz = 0$ |

Morera's Theorem is the converse of ...

Select the correct option

<input type="radio"/>	Guass Mean value Theorem
<input type="radio"/>	De Movire's theorem
<input type="radio"/>	Green's Theorem
<input type="radio"/>	Cauchy Goursat Theorem



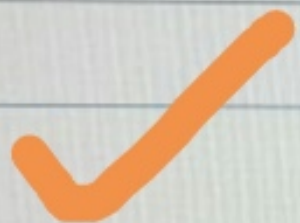
Question # 1 of 10 (Start time: 02:00:42 PM, 13 August 2021)

If function f is continuous in simple connected domain D and $\int_C f(z)dz$ for every closed contour C in D , then f is analytic in D .

This statement is of:

Select the correct option

- Cauchy theorem
- Green's Theorem
- Morera's Theorem
- Cauchy Goursat Theorem



Type here to search



22°C Sunny

4 of 10 (Start time: 04:36:11 PM, 13 August 2021)

Cauchy integral formula to compute the value of integral

$$\int_C \frac{z-2}{z+i} dz \text{ where } f(z) = z-2 \text{ and } z_0 = -i$$

the correct option

$$2\pi(-1+2i)$$

$$2\pi(1-2i)$$

$$2\pi(1+2i)$$


$$2\pi(-1-2i)$$

Question # 3 of 10 (Start time: 04:35:29 PM, 13 August 2021)

Each simple closed curve C divides the plane into two domains (connected open sets). One of which is unbounded and is called the _____ of C .

Select the correct option

<input type="radio"/>	interior
<input type="radio"/>	exterior



Question # 2 of 10 (Start time: 04:34:31 PM, 13 August 2021)

Consider contour $C : z(t) = e^{it} = \cos t + i \sin t$ be counter clockwise where $-\pi/2 \leq t \leq \pi/2$ then the integral

$$\int_C z(t) dz =$$

Select the correct option

Reload Math

 1 -1 0 2

Let $f(t) = u(t) + iv(t)$ be a piece - wise continuous complex valued function of real variable t , $a \leq t \leq b$ then

Select the correct option

$$\left| \int_a^b f(t) dt \right| \leq \int_a^b |f(t)| dt$$



$$\left| \int_a^b f(t) dt \right| \geq \int_a^b |f(t)| dt$$

$$\left| \int_a^b f(t) dt \right| > \int_a^b |f(t)| dt$$

$$\left| \int_a^b f(t) dt \right| < \int_a^b |f(t)| dt$$

Question # 5 of 10 (Start time: 04:37:30 PM, 13 August 2021)

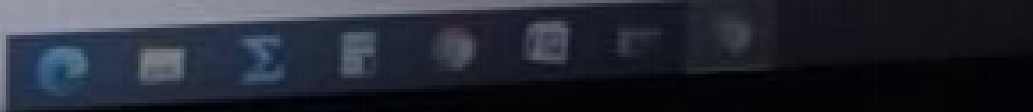
Each simple closed curve C divides the plane into interior and exterior domains where one is bounded and other is unbounded. This statement is of

Select the correct option

- Cauchy Goursat Theorem
- Jordan Curve Theorem
- Green's Theorem
- Cauchy Theorem



Type here to search



If function f is an analytic function in simple connected domain where $C_R(z_0) = \{z(t) : |z - z_0| = R\}, 0 < t < 2\pi$ and R be the radius of circle, then

the correct option

$$f(z_0) = \frac{1}{2\pi i} \int_0^{2\pi} f(z_0 + Re^{it}) dt$$



$$f(z_0) = \frac{1}{4\pi} \int_0^{2\pi} f(z_0 + Re^{it}) dt$$

$$f(z_0) = \frac{1}{\pi} \int_0^{2\pi} f(z_0 + Re^{it}) dt$$

$$f(z_0) = \frac{1}{2\pi} \int_0^{2\pi} f(z_0 + Re^{it}) dt$$

If C is simple closed contour with positively oriented such that fixed complex value z_0 lies interior to C , then for integer $n = 1$ we have,

$$\int_C \frac{1}{(z - z_0)^n} dz =$$

Select the correct option

- | | |
|-----------------------|-----------|
| <input type="radio"/> | 0 |
| <input type="radio"/> | πi |
| <input type="radio"/> | $2\pi i$ |
| <input type="radio"/> | $-2\pi i$ |

Let z_0 and z_1 be two points in simply connected domain D
and f be an analytic complex valued function in D and C be contour by joining z_0 and z_1 then

$$\int_{z_0}^{z_1} f(s) ds = F(z_1) - F(z_0)$$

$$\int_{z_1}^{z_0} f(s) ds = F(z_0) - F(z_1)$$

$$\int_{z_0}^{z_0} f(s) ds = F(z_0) - F(z_0)$$

$$\int_{z_1}^{z_1} f(s) ds = F(z_1) - F(z_1)$$

Evaluate $\int_0^{2\pi} \sin\left(\frac{\pi}{4} + 3e^{i\theta}\right) d\theta$ if $f(z) = \sin z$

$$\sqrt{2\pi}$$

$$2\pi$$

$$\frac{\pi}{2}$$

$$\frac{\pi}{\sqrt{2}}$$

Let α lies in the interior of contour C and

$$P_n(z) = a_n z^n + a_{n-1} z^{n-1} + a_{n-2} z^{n-2} + \dots + a_1 z + a_0 z^0$$

then the value of $\int_C \frac{P_n(z)}{z - \alpha} dz$ is ... when $n = 3$

$$2\pi P_3(\alpha)$$

$$2\pi i P_3(\alpha)$$

$$2\pi P_n(\alpha)$$

$$2\pi i P_n(\alpha)$$

Evaluate $\int_C f(z) dz$ where $C: z(t) = (x + iy)t$ for $a \leq t \leq b$ and $f(z) = z$

[Reload Math Equations](#)

$$\frac{(b^2 - a^2)(x + iy)^2}{2}$$

$$\frac{(b^2 + a^2)(x + iy)}{2}$$

$$\frac{(b^2 - a^2)(x + iy)}{2}$$

$$\frac{(b^2 + a^2)(x + iy)^2}{2}$$

Evaluate the integral $\int_C f(z) dz$ where $C: z(t) = e^{it}$ for $0 \leq t \leq \pi$ and $f(z) = 1/z^2$

$$1 - e^{i\pi}$$

$$1 + e^{-i\pi}$$

$$1 + e^{i\pi}$$

$$1 - e^{-i\pi}$$

Evaluate $\frac{1}{2\pi} \int_0^{2\pi} \exp\left(\frac{i\pi}{3} + 5e^{i\theta}\right) d\theta$ if $f(z) = \exp(z)$ then we get,

$$\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}$$



$$\cos \frac{\pi}{3} + \sin \frac{\pi}{3}$$

$$\sin \frac{\pi}{3} + i \cos \frac{\pi}{3}$$

$$\cos \frac{\pi}{3} - i \sin \frac{\pi}{3}$$

$\int_C \frac{f(z)}{(z+1)^4} dz$ where $z = e^{2z}$ then this integral is equal to

$$\frac{\pi i}{3!} f^{(3)}(1)$$

$$\frac{\pi i}{3!} f^{(3)}(-1)$$

$$\frac{2\pi i}{3!} f^{(3)}(1)$$

$$\frac{2\pi i}{3!} f^{(3)}(-1)$$

Question # 7 of 10 (Start time: 05:10:35 PM, 13 August 2021)

If C is simple closed contour and D be the domain that forms interior of C . P and Q are continuous function and their partial derivatives are also continuous then

Select the correct option



$$\int_C [P(x, y)dx - Q(x, y)dy] = \iint_D (Q_x(x, y) - P_y(x, y))dxdy$$



$$\int_C [P(x, y)dx + Q(x, y)dy] = \iint_D (Q_x(x, y) + P_y(x, y))dxdy$$



$$\int_C [P(x, y)dx + Q(x, y)dy] = \iint_D (Q_x(x, y) - P_y(x, y))dxdy$$



$$\int_C [P(x, y)dx - Q(x, y)dy] = \iint_D (Q_x(x, y) + P_y(x, y))dxdy$$

