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Question No : 41 of 52	
Use Wallis sine formula to evaluate $\int_{0}^{\frac{\pi}{2}} \sin^5 x dx$	
Answer (Please <u>click here</u> to Add Answer)	VuAn
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Marks: 2 (Budgeted Time 4 Min)



Question No: 42 of 52

Prove whether the	following function is	even,	odd or	neither.
$f(x) = x^3 + x^2$				

Answer (Please click here to Add Answer)

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Marks: 2 (Budgeted Time 4 Min)



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Consider the point
$$\left(\frac{\sqrt{3}}{2}, \sqrt{3}, \frac{1}{2}\right)$$
 in rectangular coordinate system. Find the value of " ρ " in spherical coordinates.

Answer (Please click here to Add Answer)

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Marks: 2 (Budgeted Time 4 Min)

Question No : 44 of 52	
Write down the expression for the arc-length of the curve represented by the vector valued function $r(t) = \cos t$	$t^2\hat{i} + \sin t^2\hat{j}$ where $0 \le t \le \frac{\pi}{2}$. (Do
Answer (Please <u>click here</u> to Add Answer)	VuAns
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Marks: 2 (Budgeted Time 4 Min)

o not evaluate the expression).



Question No : 45 of 52	
Use Wallis cosine formula to evaluate $\int_{0}^{\frac{\pi}{2}} \left(\cos^{3} x + \cos^{4} x\right) dx$	
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Marks: 3 (Budgeted Time 6 Min)



Question No : 46 of 52

Prove whether the following function is even, odd or neither. $f(x) = \sin^2 x \cos 3x$

Answer (Please click here to Add Answer)

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Marks: 3 (Budgeted Time 6 Min)



Question No : 47 of 52

Find the region where the function $f(x, y) = \sqrt{9 - x^2 - y^2}$ is continuous.

Answer (Please click here to Add Answer)

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Marks: 3 (Budgeted Time 6 Min)

Question No : 48 of 52	
What is the arc-length of the curve $\vec{r}(t) = (4+3t)\hat{i} + (2-2t)\hat{j}$ when $3 \le t \le 4$?	
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Marks: 3 (Budgeted Time 6 Min)



Question No : 49 of 52

Determine the Fourier co-efficient b_s of the periodic function defined below: f(x) = 2x + 1 $0 \le x \le 2$

Answer (Please click here to Add Answer)

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Marks: 5 (Budgeted Time 10 Min)



Question No : 50 of 52

Determine whether the following vector field \vec{F} is conservative or not.

$$\vec{F}(x, y, z) = (3x + y)\hat{i} + xy^2z\hat{j} + xz^2\hat{k}$$

Answer (Please click here to Add Answer)

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Marks: 5 (Budgeted Time 10 Min)

uestion	No	: 51	of 52	

Using second partial derivative test show that the function $f(x, y)$	y = xy(24 - x - y) is maximum at $x = 8, y = 8$.
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Answer (Please click here to Add Answer)

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Marks: 5 (Budgeted Time 10 Min)

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Let $r(t) = t^2$	į +	$t j + (t^2 \cdot$	-5) k.	Find t, such that $r(t)$ and $r'(t)$ are perpendicular to each other.

Answer (Please click here to Add Answer)

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Marks: 5 (Budgeted Time 10 Min)

Question No: 41 of 52

Determine whether the following differential is exact or not.

 $dz = 4x^3y^3 dx + 3x^4y^2 dy$

Answer (Please click here to Add Answer)



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0	Question No : 42 of 52	
	Evaluate	
	$\int \cos nx dx$	
	J_{x} where n is an integer other than zero.	
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Question No : 43 of 52	
Prove whether the following function is even, odd or neither. $f(x) = x^2 - 4 \sin x$	
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Question No : 44 of 52	
Given $a^{r} \times b^{1} = 3xi + 2yj + xk$ and $c^{r} = 7xi + 4yk$. Find scalar triple product of these vectors.	
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Question No : 45 of 52	
What is the arc-length of the curve $\vec{r}(t) = (4+3t)\hat{i} + (2-2t)\hat{j} + (5+t)\hat{k}$ when $3 \le t \le 4$?	
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Question No : 46 of 52			
Find $div \vec{F}$, if $\vec{F} = (3x + y)\hat{i} + xy^2z\hat{j} + (xz^2)\hat{k}$			
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Question No : 47 of 52	
Determine the Fourier co-efficient a_0 of the periodic function defined below: $f(x) = 2x + 1$ $0 \le x \le 2$	
Answer (Please <u>click here</u> to Add Answer)	VuAns
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Question No : 48 of 52	
A line, in three dimensional space, passes through the point $(3, -4, 2)$ and parallel to the vector $\vec{n} = 4\hat{i} + 3\hat{j} + 6\hat{k}$. V	Write down the equation of thi
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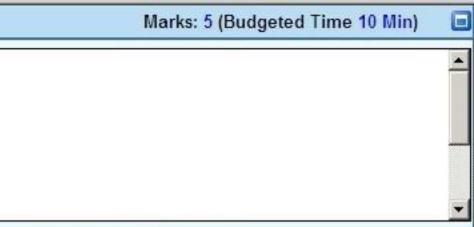
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his line in parametric and symmetric form.

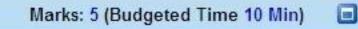


uestion No : 49 of 52				
Using definite integral, find area of the region bounded by the curves of $y = x^2 + 1$ and $y = 5$				
Answer(Please <u>click here</u> to Add Answer)	VuAns			
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Question No : 50 of 52	
Show that Laplace transform of the function	
$f(t) = 1 \qquad \text{is}$	
$\frac{1}{s}$ where s is a constant for the integration and s > 0.	
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Answer (Please <u>click here</u> to Add Answer)	VuAn
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Question No : 51 of 52

Determine whether the following vector field \vec{F} is conservative or not.

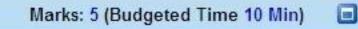
$$\vec{F}(x, y, z) = (4x - z)i + (3y + z)j + (y - x)k$$

Answer (Please click here to Add Answer)

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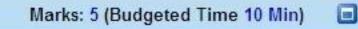
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Question No : 52 of 52	
Consider the point (-5, 5, 6) in rectangular coordinate system. Convert it into Spherical coordinates.	
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Question No : 41 of 52	Marks: 2 (Budgeted Time 4 Min)	
Use Wallis cosine formula to evaluate $\int_{0}^{\frac{\pi}{2}} \cos^{6} x dx$		
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Question No: 42 of 52

Prove whether the following function is even, odd or neither.
$f(x) = x^3 + x^2$

Answer (Please click here to Add Answer)

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Question No : 43 of 52	Marks: 2 (Budgeted Time 4 Min)	
Let $f(x, y) = \tan^{-1} \frac{y}{x} - y^2 \tan^{-1} \frac{x}{y}$. Is the function defined at (1, 1)? If yes, what is its value and if no, give the reason.		1
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Question No : 44 of 52	Marks: 2 (Budgeted Time 4 Min)	
Evaluate the following limit. $\lim_{t \to \frac{x}{4}} \left[(\cos t)\hat{i} + (\sin t)\hat{j} \right]$		*
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Question No : 45 of 52	Marks: 3 (Budgeted Time 6 Min)
Determine the fourier co-efficient a_0 , of periodic function defined by $f(x) = x$ $0 \le x \le 1$	
Answer (Please <u>click here</u> to Add Answer)	VuAnswers.com
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Question No : 46 of 52	
Use Wallis sine formula to evaluate $\int_{0}^{\frac{\pi}{2}} (\sin^{3} x + \sin^{4} x) dx$	
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Question No : 48 of 52	Marks: 3 (Budgeted Time 6 Min)	
What is the arc-length of the curve $\vec{r}(t) = 3\cos t \hat{i} + 3\sin t \hat{j}$ when $0 \le t \le 2\pi$?		-
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Question No: 49 of 52

Consider a periodic function defined by f(x) = 3x $-\pi \leq x \leq \pi$

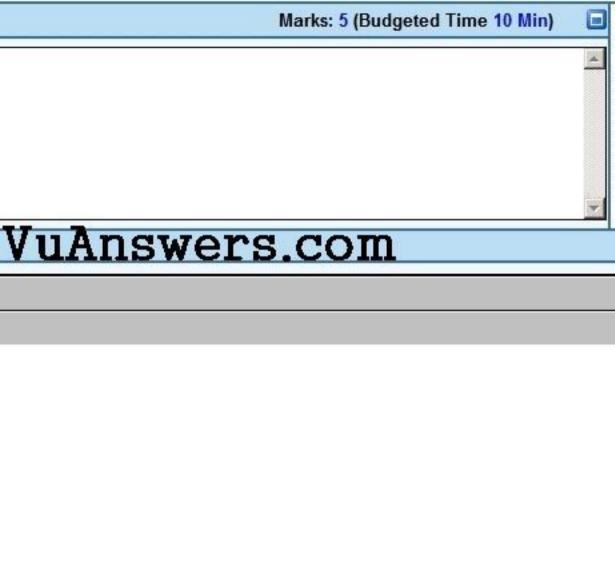
Find whether the given function is even or odd? (i)

(ii) Determine Fourier Co-efficients a_0 , a_n and b_n

Answer (Please click here to Add Answer)

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Question No : 50 of 52

Determine whether the following vector field \vec{F} is conservative or not. $\vec{F}(x, y, z) = (3x + y)\hat{i} + xy^2z\hat{j} + xz^2\hat{k}$

Answer (Please click here to Add Answer)

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Question No : 51 of 52	Marks: 5 (Budgeted Time 10 Min)	
Find Equation of a Tangent plane to the surface $f(x, y, z) = x^2 + 3y + z^3 - 9$ at the point (2, -1, 2)		4
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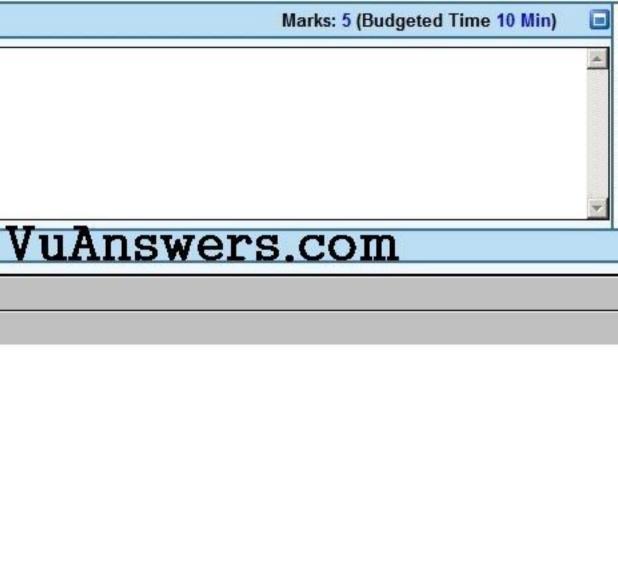
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I	Let $r(t) =$	$t^2 i +$	t j + ($(t^2 - 5) k$.	Find t, such that $\vec{r(t)}$ and $\vec{r'(t)}$ are perpendicular to each other.	

Answer (Please click here to Add Answer)

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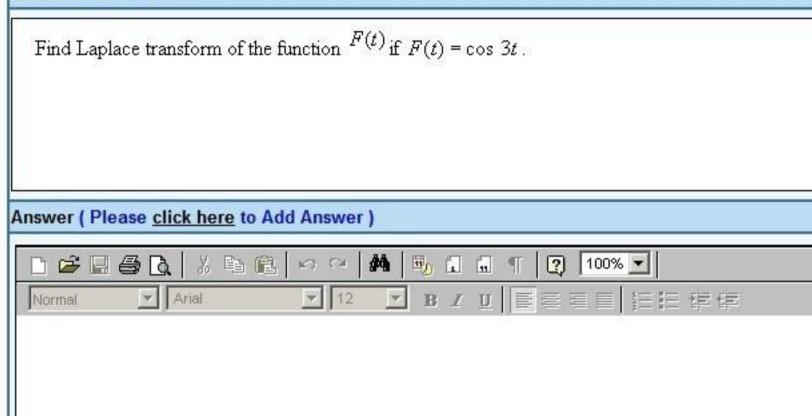




Question No : 41 of 52	Marks: 2 (Budgeted Time 4 Min)	0
Use Wallis sine formula to evaluate $\int_{0}^{\frac{\pi}{2}} \sin^5 x dx$		4
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Question No: 42 of 52





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Question No: 43 of 52

State the condition when
$$\iint_{\mathbb{R}} f(x, y) dA = \int_{c}^{d} \int_{a}^{b} f(x, y) dx dy = \iint_{a}^{b} \int_{c}^{d} f(x, y) dy dx$$
 where R is the region of integration.

Answer (Please click here to Add Answer)

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Marks: 2 (Budgeted Time 4 Min) swers.com

Question No: 44 of 52

Find derivative of the following vector-valued function.

$$\vec{r}(t) = e^{t^2} \hat{i} + t^2 \hat{j} + \sec 2t \hat{k}$$

Answer (Please click here to Add Answer)

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Question No : 45 of 52	
Use Wallis sine formula to evaluate $\int_{0}^{\frac{\pi}{2}} (\sin^{3} x + \sin^{4} x) dx$	
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Question No: 46 of 52

Find Laplace transform of the function $F(t)$ if $F(t) = e^{2t} \sin 3t$	
Answer (Please <u>click here</u> to Add Answer)	VuAnswers.com
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Question No : 47 of 52	
Find the critical point for the given function $f(x, y) = 6x^2 + xy - 2y^2$ along the line $y = 3x + 1$	at which the absolute extrema of the function can occ
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Question No : 48 of 52	Marks: 3 (Budgeted Time 6 Min)	
What is the arc-length of the curve $\vec{r}(t) = 3\cos t \hat{i} + 3\sin t \hat{j}$ when $0 \le t \le 2\pi$?		*
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Marks: 5 (Budgeted Time 10 Min) Question No: 49 of 52 -Determine the Fourier co-efficient b, of the periodic function defined below: f(x) = 2x + 1 $0 \le x \le 2$ VuAnswers.com Answer (Please click here to Add Answer) 😂 🖬 🚳 🔃 🕺 🛍 🛤 📾 🖓 🖬 🖷 🝸 100% 🔽 ✓ 12 ✓ B Z U ■ 三百日 短短律律 ▼ Arial Normal Made by: Waqar Siddhu



Question No : 50 of 52

Determine whether the following vector field \vec{F} is conservative or not.

$$\vec{F}(x, y, z) = x^2 z \hat{i} + y^2 x \hat{j} + (y + 2z) \hat{k}$$

Answer (Please click here to Add Answer)

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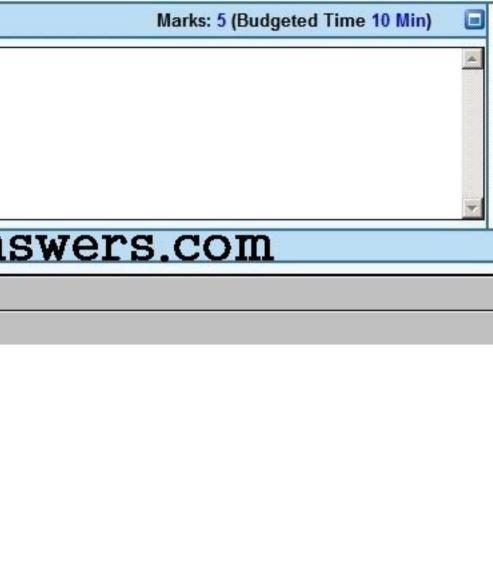




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Question No : 51 of 52

If $f(x, y) = (x - 4) \ln(xy)$	
Find both first order partial derivatives.	
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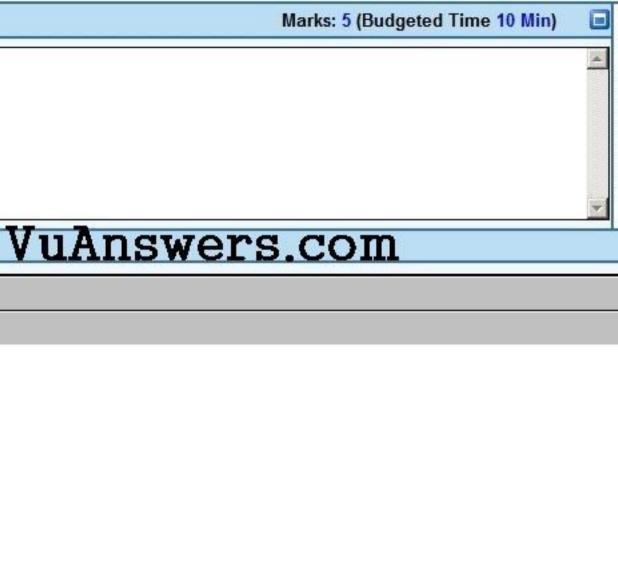
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I	Let $r(t) =$	$t^2 i +$	t j + ($(t^2 - 5) k$.	Find t, such that $\vec{r(t)}$ and $\vec{r'(t)}$ are perpendicular to each other.	

Answer (Please click here to Add Answer)

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