Time left 0:38:04

Question 1

Not yet answered

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Flag question

The domain of the function $f(x,y) = \sqrt{x-4} + \frac{1}{\sqrt{y-2}}$. is

A) All the points in the xy-plane that lie to the right of (or on) the line $x = 4$ and below the line $y = 2$.

B) All the points in the xy-plane that lie to the left of (or on) the line $x = 4$ and below the line $y = 2$.

C) All the points in the xy-plane except the point (4,2).

D) All the points in the xy-plane that lie to the right of (or on) the line $x = 4$ and above the line $y = 2$.

E) All the points in the xy-plane that lie to the right of (or on) the line $x = 4$ and above (or on) the line $y = 2$.

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Question **2**

Not yet answered

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Flag question

Let the directional derivative of $f(x,y,z)$ at the point $(2,-1,2)$ in the direction of $\vec{v} = \langle 2,3,6\rangle$ be $-\mathbf{6}$ and that $\|\nabla f(2,-1,2)\| = \mathbf{6}$. Then $\boldsymbol{\nabla f(2,-1,2)}$ equals

A) $\langle \frac{12}{3}, -\frac{6}{3}, \frac{12}{3}\rangle$.

B) $\langle -\frac{12}{3}, \frac{6}{3}, -\frac{12}{3}\rangle$.

C) $\langle -\frac{12}{7}, -\frac{18}{7}, -\frac{36}{7}\rangle$.

D) $\langle -24, 18, -72\rangle$.

E) $\langle \frac{12}{7}, \frac{18}{7}, \frac{36}{7}\rangle$.

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Question **3**

Not yet answered

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Flag question

The arc length function $s(t)$, for the curve $\vec{r}(t) = < \cos e^t \ , \sin e^t, \ \sqrt{8}\, e^t >$, measured from the point Q where $t = 0$, in the direction of increasing t is:

(A) $3e^{2t} - 3$

(B) $3e^{t} - 3$

(C) $\sqrt{8}\, e^{t} - 1$

(D) $3e^{t} - 1$

(E) $e^{t} - 1$

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Question **4**

Not yet answered

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Flag question

The parametric equations of the normal line to the surface $y^4 + z^2 = 16 - x^3$ at the point $(-1, 2, -1)$ are

A) $x = -1 + 3t,\ y = 2 + 4t,\ z = -1 + 2t$ where $t \in \mathbb{R}$.

B) $x = -1 + 3t,\ y = 2 + 32t, z = -1 + 2t$ where $t \in \mathbb{R}$.

C) $x = 1 + 3t,\ y = 14 + 4t,\ z = 1 + 2t$ where $t \in \mathbb{R}$.

D) $x = -1 + 3t,\ y = 2 + 4t,\ z = -1 - t$ where $t \in \mathbb{R}$.

E) $x = -1 + 3t,\ y = 2 + 32t, z = -1 - 2t$ where $t \in \mathbb{R}$.

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Question **5**

Not yet answered

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Flag question

A vector function that represents the curve of intersection of the cylinder $y^2 + z^2 = 16$ and the surface $x = yz$ is

(A) $\vec{r}(t) =< 4\cos t\ ,\ 4\sin t\ ,\ 8\sin 2t >$

(B) $\vec{r}(t) =< 4\cos t\ ,\ \sin t\ ,\ 8\sin 2t >$

(C) $\vec{r}(t) =< 8\sin 2t\ ,\ 4\cos 2t\ ,\ 4\sin 2t >$

(D) $\vec{r}(t) =< 8\sin 2t\ ,\ 4\cos t\ ,\ 4\sin t >$

(E) $\vec{r}(t) =< 8\cos 2t\ ,\ 4\cos 2t\ ,\ 4\sin t >$

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Question 6

Not yet answered

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Flag question

Suppose f is a differentiable function of x and y, and $g(t,s) = f(x,y)$ where $x = 4t - s^2$ and $y = \frac{1}{2}se^{t-1}$. Use the table of values to calculate $g_s(1,2)$.

	f	g	f_x	f_y
(0,1)	3	10	5	4
(1,2)	10	2	1	3

A) 4

B) 8

C) 14

D) 24

E) −18

Not yet answered

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Flag question

Time left 0:20:38

Parametric equations for the tangent line to the curve of the vector function:

$\vec{r}(t) = <2\sqrt{t}, t^2, -3t>$ at the point $(2, 1, -3)$ is:

(A) $x = 2 + 2t$, $y = 1 + 2t$, $z = -3 - 3t$

(B) $x = 2 + t$, $y = 1 - 2t$, $z = -3 - 3t$

(C) $x = 2 + t$, $y = 1 + 2t$, $z = -3 - 3t$

(D) $x = 2 + t$, $y = 1 + 2t$, $z = -3 + 3t$

(E) $x = -2 - t$, $y = -1 - 2t$, $z = 3 + 3t$

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Question **8**

Not yet answered

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Flag question

If $\|\vec{r}(t)\| = 4$, then

(A) $\vec{r}(t) \times \frac{d}{dt}\vec{r}(t) = \vec{0}$

(B) $\vec{r}(t) \cdot \frac{d}{dt}\vec{r}(t) = 16$

(C) $\vec{r}(t) \cdot \frac{d}{dt}\vec{r}(t) = 0$

(D) $\left\|\frac{d}{dt}\vec{r}(t)\right\| = 4$

(E) $\vec{r}(t) \times \frac{d}{dt}\vec{r}(t) = 4\vec{r}(t)$

Question 9

Not yet answered

Marked out of 3.00

Flag question

Time left 0:11:38

$$\lim_{(x,y)\to(0,0)} \frac{xy^3}{x^2+y^6}$$

(A) does not exist, since along the x-axis the limit is 0, and along $x = y^3$ the limit is $\frac{1}{2}$

(B) does not exist, since along the y-axis the limit is 1, and along $x = y^3$ the limit is $\frac{1}{2}$

(C) does not exist, since along the x-axis the limit is 0, and along $y = x^3$ the limit is $\frac{1}{2}$

(D) does not exist, since along the $x = my^3$, the limit is $\frac{m}{m+1}$

(E) The limit exists and equals to $\frac{1}{2}$, since along $x = y^3$ the limit is $\frac{1}{2}$

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Question **10**

Not yet answered

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Flag question

At the point (0,0) , the linearization of the function $f(x,y) = \frac{2x+3}{1-4y}$ is

(A) $L(x,y) = -3 + 2x - 12y$

(B) $L(x,y) = -3 - 2x - 12y$

(C) $L(x,y) = -3 + 2x + 12y$

(D) $L(x,y) = 3 - 2x + 12y$

(E) $L(x,y) = 3 + 2x + 12y$