Paul Sitkiewicz

1) Find the limit or show that it does not exist.
$$\lim_{(x,y)\to\left(\frac{3\pi}{2},\frac{2\pi}{4}\right)} \csc(x)\tan(y)$$

2) Find the limit or show that it does not exist.
$$\lim_{(x,y)\to(0,0)} \frac{3xy^2}{x^2+y^4}$$

3.) Find the limit of f as (x,y) goes to (0,0) or show that the limit does not exist

f(x,y) = (x^3 – xy^2)/(x^2+y^)

4.) By considering different paths for approach how that the function has no limit at (x,y) goes to (0,0).

F(x,y)= -(x)/sqrt(x^2 + y^2)

5.) find the limits by rewriting the fractions first.

Lim (x,y) goes to (1,1) (x^2-y^2)/(x-y)

Andrew Bass

Find the equation in x and y whose graph is the path of the particle.

R(t)= (t+1)I +(t^2 -1)j t=1

Find the equation in x and y whose graph is the path of the particle.

R(t) = (t/(t+1))I + (1/t)j t=-1/2

Find the equation in x and y whose graph is the path of the particle.

R(t)= (e^t)I + (2/9e^2t)j, t= ln3

Sophia Cannon

Integrate
$$\int_0^{\frac{\pi}{2}} [(cost)i - (sin2t)j + (sin^2t)k]\ dt$$

Vector Functions/Derivatives:

r(t) is the position of a particle in space at time t=1. Find the particles velocity and acceleration vectors. Also find the particle's speed and directions of motion when t=0. Write the particle's velocity at that time as the product of its speed and direction.

$$r(t) = (2\ln(t+1))i + (t^2)j + \left(\frac{t^2}{2}\right)k \qquad t = 1$$

Vector Functions/Derivatives:

The path $r(t) = (t - sint)i + (1 - cost)j$ describes the motion on the cycloid $x = t - sint,\ \ y = 1 - cost$. Find the particle's velocity and acceleration vectors at t=$\frac{\pi}{2}$.

The path $r(t) = (4sint)i + (4cost)j$ decribes motion on the circle $x^2 + y^2 = 16$. Find the particles velocity and acceleration vectors at $t = \frac{\pi}{3}\ \ and\ t = \frac{\pi}{6}$.

Andrew Corbett

Find the curve's unit tangent vector. Also find the length of the indicated portion of the curve.

R(t)=(2cost)i + (2sin t)j + sqrt(5t)k

(0) less than or equal to (t) less than or equal to (pi)

Find k for the plane curves

r(t)= (t)i + (ln cos t) j,

(-pi/2) less than (t) less than pi/2

Find T for the space curves

R(t)= (3sin t)i + (3cos t)j + (4t)k

Jo Baslot

find r, T, N and B at the given value of t. Then find equations for the osculating, normal, and rectifying planes at the value of t.

r(t) = (cos t) i + (sin t) j – k , t = pi/4

find r, T, N and B at the given value of t. Then find equations for the osculating, normal, and rectifying planes at the value of t.

r(t) = (cos t) I + (sin t)j + (t)k, t= 0

Find T,N, k, B, and t for the space curves

r(t)= (cos t +t sin t)I (sint -t cost)j +2k

Study the domain, range and level lines of f(x,y) = $\sqrt{4x + 10y}$

Study the domain, range and level lines of f(x,y) = $\ln(y - (x^2 + 5))$

Find the function's domain, range, level curves, boundary of the function's domain

F(x,y)= y-x

F(x,y)= 4x^3 +9 y^2

Andrew Humphries

Find the directional derivative $D\vec{v}(0,4)$ for $f(x,y) = 7^x 6^y \cos(6y)$ in the direction $\vec{\mathrm{v}} <$

$\sin\frac{\pi}{4}, sin\frac{\pi}{2} >$

Find the directional derivative $D\vec{v}(3,9)$ for $f(x,y) = 2^{xy}\cos(x^2 + y^2)$ in the direction $\vec{\mathrm{v}} <$

$1, cos\frac{5\pi}{6} >$

Find the gradient of the function at the given point

F(x,y) = y-x (2,1)

Find the gradient of the function at the given point

F(x,y)=(sqrt 2x+3y) (-1,2)

Lane-Marie Kosmata

find partial f / partial x and partial f / partial y

f(x,y) = 2x^2 – 3y -4

find partial f / partial x and partial f / partial y

$$f(x,y) = x/(x^2 + y^2)$$

find fx, fy, and fz

$$F(x,y,z) = 1 + x*y^2 - 2z^2$$

find fx, fy, and fz

$$F(x,y,z) = \ln (x + 2y\ 3z)$$