

# Assignment 1(b)

## Question

Find whether mixed partial derivative of second order are same or not.

$$f(x, y) = \sin(x) \cos(y) \text{ at } \left( \frac{-\pi}{2}, \frac{\pi}{2} \right)$$

## Code

```
1  syms x y;
2  f1 = sin(x)*cos(y);
3  p = diff(f1,x);
4  q = diff(f1,y);
5  p1 = diff(f1,x,x);
6  q1 = diff(f1,y,y);
7  p2 = diff(f1,y,x);
8  q2 = diff(f1,x,y);
9  p_subs = subs(p,{x,y},{-pi/2,pi/2});
10 q_subs = subs(q,{x,y},{-pi/2,pi/2});
11 p1_subs = subs(p1,{x,y},{-pi/2,pi/2});
12 q1_subs = subs(q1,{x,y},{-pi/2,pi/2});
13 p2_subs = subs(p2,{x,y},{-pi/2,pi/2});
14 q2_subs = subs(q2,{x,y},{-pi/2,pi/2});
15 if(p2_subs == q2_subs)
16     disp('Mixed partial derivative are same at
17         (-pi/2,pi/2)');
18 else
19     disp('Mixed partial derivative are not same at
20         (-pi/2,pi/2)');
21 end
```

## Output

```
>> Assignment_1b
Mixed partial derivative are same at (-pi/2,pi/2)
>>
```