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**ASSIGNMENT**

**CONTINUITY AND DIFERENTIABILITY**

1. Evaluate :
2. If then prove that .
3. Find at x = 1, y = if sin2y + cosxy = k .
4. Find the value of c in Rolle’s Theorem for the function f(x) = x3 – 3x in [-].
5. Find if f(x) = xx + .
6. If f is continuous at x=0, then find the value of a.

, when x < 0

f(x) = a , when x = 0.

, when x>0

1. Find the value of a for which the function f is defined as

a sin , if x≤ 0  
f(x) =

, if x > 0 is continuous at x=0.

1. Show that the function f(x) is defined by

+ cosx, if x > 0

f(x) = 2, if x = 0 is continuous at x=0.

, if x < 0

1. If f(x) defined by the following, is continuous at x=0, then find the values of a, b and c.

, if x < 0

f(x) = c , if x = 0

, if x > 0

1. If y = sin-1 {x -. } and 0 < x < 1, then find .
2. If ex + ey = ex+y, prove that + ey –x = 0
3. If x =a (cos t +log tan ), y = a sin t, then evaluate d2y/dx2 at t =π/3
4. If xm yn = (x+y) m+n, prove that dy͟/dx =y/x
5. If x =a cosθ +b sinθ and y = a sinθ – b cosθ , show that y**2** x + y = 0
6. Differentiate w.r.t when x ≠0.
7. If y,then prove that --
8. If and y = at t.
9. If
10. If y = .
11. If y =(tan-1 x)2**,** then show that (x2+1)
12. Prove that: [ +=
13. If y = -1 then show that (1- x2) - x -a2y = 0.
14. Find, if y = (cos x)x + (sin x)1/x.
15. Differentiate the following function w.r.t. x: ).
16. Differentiate with respect to x logx.