**TOPIC : APPLICATION OF DERIVATIVES**

**Solutions :**

1. In a right angled triangle area is maximum it it is isosceles. Let angles are

GE = 1++ . Ans (a)

1. Ans : (b)

Since (2,3) lies on the curve,

1. Ans : (b) . Apply MVT for f(x) in [1,6] . =(c) ,1<c<6 ==> f(6)+2=5(c)10
2. (x) =2x+k >0 ==> k>-2x in [-2,2] ,==> k>4 (put x=-2) . Ans(a)
3. Ans : (a)

Equation of tangent at is :

Equation of normal at (1,4) is :

; Area of

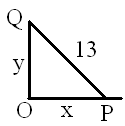
1. Ans : (a)

1. Ans : (a)

1. Area of a right angled triangle is maximum when it is isosceles. Given hypotenuse is k. verfy the options

Ans(d)

1. Ans : (c)



Where

1. Ans : (b)

is a point of maximum for

maximum slope

1. Ans : (a)

Minimum value of is

Minimum value of given expression is

1. Ans : (b)

Area is maximum when

1. Ans : (d)

-----(1)

----(2)

1. Ans : (b)

be any point on the curve

Let . Let

Since , if d is minimum, is also minimum

Let

1. Ans : (b)

Perpendicular distance from to the line

1. Ans : (b)

Diagonal

1. =(c) ==> = . Ans (c)
2. Ans : (a)

1. Ans : (a)

By data such that

1. Wkt maximum of 4sinx+3cosx+2 = +2 =7 . Minimum of given function = =1 .Ans(a)
2. dV =4 dr ; dS =8r dr. ==> = ===>dV = 2.5. Ans(b)
3. Ans : (d)

Tangent is vertical

1. Ans : (a)

In an equilateral triangle , median = altitude

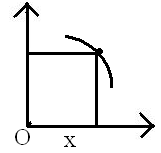
i.e median = h ;

1. Ans : (a)

slope of normal

Slope of given line

Point is

1. Ans : (d)

Let be the fourth vertex,

Area ,

If area is maximum then

Maximum area

1. S= ut-, =0 ==> t= ; = . Ans( d)
2. Ans : (b)

is increasing and hence maximum of is

1. Ans : (c)

Maximum isosceles triangle is equilateral

1. Ans : (a)

Let

----(1)

----(2)

----(3)

Solving the equation we get

1. Ans : (c)

1. Ans : (a)

For increasing function,

1. Ans : (d)

Tangent is

(0,0) lies on it point is (e,1)

Slope of normal

Equation of normal is

Perpendicular distance from (0,0) to normal

1. Ans : (a)

Let

is maximum when y is minimum

1. Ans : (b)

find

minimum

1. Ans : (b)

1. Ans : (d)

minimum of

Maximum of

Minimum of

1. Ans : (d)

tangent is perpendicular to y – axis

1. Ans : (b)

slope of

lies on the curve

1. Ans : (b)

Curve crosses y – axis at (1,0)

normal at (1,0) is

1. Ans : (b)

Slope of

Substitute in equation of line to get

1. Ans : (d)

1. Ans : (d)

Equation of tangent at is

Area

1. Ans : (d)

1. Ans : (d)

Since is acute,

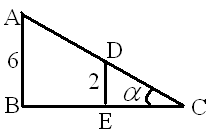
1. Ans : (b)

is tangent to

Area of

1. Ans : (b)

Slope of tangent

1. Ans : (b)

1. Ans : (b)

𝑡 ngent to int for f(x) and g(x) but not for h(x) []between the floor and the ladder is decreasing when lower end of the lad

Perimeter

1. Ans : (c)

for horizontal tangent

1. Ans : (b)

1. Ans : (c)

Differentiate w.r.to and put we get

Equation of tangent at (a,a) is

This cuts x – axis at A and y – axis at B

1. Ans : (c)

Let

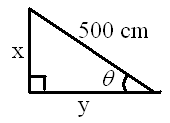
1. Ans : (b)

1. Ans : (c)

Differentiate w.r.to x to get

1. Ans : (a)

1. Ans : (b)

1. Ans :(b)

, differentiate w.r.to

1. Ans : (d)

slope of

1. Ans : (a)

1. Ans : (c)

By data such that

**Answer Key :**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1) a | 2) b | 3) b | 4) a | 5) a | 6) a | 7) a | 8) 1d | 9)c | 10) b |
| 11)a | 12) b | 13) d | 14) b | 15) b | 16) b | 17) c | 18)a | 19) a | 20)a |
| 21)b | 22) d | 23) a | 24)a | 25)d | 26) d | 27) b | 28) c | 29) a | 30)c |
| 31)a | 32) d | 33) a | 34) b | 35) b | 36) d | 37) d | 38) b | 39) b | 40) b |
| 41)d | 42) d | 43) d | 44) d | 45) b | 46) b | 47) b | 48)b | 49) c | 50) b |
| 51)c | 52) c | 53) b | 54) c | 55) a | 56)b | 57) b | 58)d | 59) a | 60)c |