Wednesday, December 15, 2021 12:45 PM

En Velope

where dis a purameter

- W d

X Cosa + y Sina = a sec a

21 + y tan x = a sec x

9 tand - 1/ tand (-x+a) = 0

Quadratic in lan «

 $y^2 - 4 a(a-x) = 0$ 

(3) Find the enthope of the family of curk

X603 x + y Sin x = \$ -> (1)

 $\chi(-\lambda in \alpha) + \gamma(\omega) \alpha = 0$ 

 $\chi^2+y^2(1)=p^2$ 

b = c -a

 $\frac{\chi(c-a)+ay}{\alpha(c-a)}=1$ 

 $\chi(-a\chi + a\gamma = \alpha C - \alpha$ 

 $a^2 + ay - ax - ac + x(=0)$ 

It is quadratic in a

=> Envelope B²-4A(=0

 $(y-x-c)^2-4700=0$ 

 $(y-x-c)^2 = 4x^{2}$ 

Enlelope is  $(y-x-c)=2\sqrt{xc}$ 

(4) Find the entelope of the family of lines

 $y = h_{x} - am^{3}$ 

 $y-mx+am^3=0$ 

 $0 - x + 3am^2 = 0$ 

Diff W. nta m

 $y = mn - am^3$ 

 $Y = m(x - am^2)$ 

 $y^2 = m^2 (\chi - am^2)^L$ 

 $y^2 = \frac{3L}{3a} \left(\frac{23L}{3}\right)^2$ 

 $y^2 = \frac{3}{3a} \left( \frac{43}{9} \right)$ 

 $27ay^2 = 4x^3$ 

En Molope is 27 any - 42 = 0

 $y^2 = \frac{\chi}{3a} \left( \chi - a \left( \frac{\chi}{3a} \right) \right)$ 

A = 1, B = (y - x - c)

C = CC

Envelopre of  $x^2+y^2=p^2$ 

4) Find the envelope of the straight line  $\frac{x}{a} + \frac{y}{b} = 1$  where a end b are connected

by the relation a+b=c where c is the

Subingiler egn

 $(x^2+y^2)$  (as  $x + (x^2+y^2)$  )  $sin x = p^2$ 

2 Cosa + y sina = P

Diff w.nta &

 $(1)^{2}+(2)^{2}$ 

Enllelope is  $y^2 = 4a(a-x)$ 

enselope is  $B^2 - 4AC = 0$ 

- 2) Find the envelope of the straight lines represented by the equation  $x \cos \alpha + y \sin \alpha = a \sec \alpha$

= a(1+ tan2 x)

 $A = \alpha$   $B = -\gamma$   $C = \alpha - \alpha$