Friday, December 10, 2021 EVolutes 1) Find the evolute of the Ellipse $\frac{x^2}{h^2} + \frac{y^2}{h^2} = 1$

4:14 PM Parametric coardinates

x = a sin o

y = b 600

(2) Find the evolute of the hyperbola $\frac{\chi^2}{a^2} - \frac{y^2}{b^2} = 1$

The parametric form $x = a \sec 0$ Afthe hyperbola y = b = b = 0

(3) Find the evolute of the eycloid.

 $\chi = a(o-sino)$

Hyperbola

X = a beco

4 = b tano

Find out 41, 42, 72, 75, 79

(m) (a)

COYO

 $\frac{1}{2} = 2(-\frac{1}{2})$

y = a(1 - (050)

4) Find the ellolate of the curve x2+ y43 = 243

The parametric form are

 $\chi = a (\omega)^3 0$

y = a Sin³0

b sec 0

a hino

 $= a \operatorname{deco} - \frac{b}{a \sin 0} \left[1 + \frac{b^2}{a^2 \sin^2 0}\right] \left(-\frac{a^2 \sin^3 0}{b \cos^3 0}\right)$

h 6430

 b^2 sino ω so $-a^2$ sin $o - b^2$ sin o

 $= \sin \left(b^2 \left(aso - a^2 \sin o - b^2 \right) \right)$

 $= \sinh \left(-a^2 \sinh o - b^2 \sinh o\right)$

 $= - \sinh^3 O(a^2 + b^2)$

b (230

 $\frac{\left(\frac{ax}{a^2+b^2}\right)}{\left(\frac{a^2+b^2}{a^2+b^2}\right)} = \left(\frac{3a^2}{a^2+b^2}\right)$

 $= \frac{(ax)^{\frac{1}{3}}}{(a^{\frac{1}{4}+b^{2}})^{\frac{1}{3}}} - (\frac{-by}{a^{\frac{1}{4}+b^{2}}})^{\frac{1}{3}} = 1$

 $(a\bar{x})^{43} - (b\bar{y})^{43} = (a^2 + b^2)^{43}$

 $(ax)^{\frac{2}{3}} - (by)^{\frac{2}{3}} = (a^2 + b^2)^{\frac{2}{3}}$

 $\Rightarrow 8e^2 o - tan^2 o = 1$

 $From(3)^{43}-(4)^{43}$

The locus of (x,y) is

 $\frac{-by}{-by} = \tan 0 - 3(4)$

 $=\frac{a}{\omega s0}+a\frac{\sin^2 o}{\omega s^2o}+\frac{b}{a\omega s^2o}$

 $a^2 (a^2 o + a^2 sin^2 o + b^2)$

for ellipse