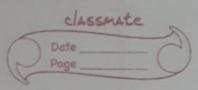
	32 -1018 e Ontre
17	Find the radius of worvature for the curve whose intrent- -sic equation is $f = a \log tan(n/4 + 4/2)$
	-sie equation is &= alog tan(14+4/2)
	3 = 4109 tgn (19 1 tra)
	$ds = \frac{q}{\sqrt{3}} \times \frac{3}{\sqrt{4}} \times \frac{1}{\sqrt{4}}$
	$d\varphi$ tan $(\pi/u+\psi/2)$ 2
	$= a \cos(\pi/4 + \psi/2) \times \frac{1}{\cos^2(\pi/4 + \psi/2)}$
	2 Sin(194442) (032(17/4+412)
	=
	$\frac{ds}{d\psi} = asec\psi \Rightarrow f = asec\psi.$
20	
27	8. t me radius of wervature for the catenary of uniform
	8.t the radius of worvature for the catenary of uniform strength $y = a \log \sec(2la)$ is a $\sec(4la)$ $f = (1 + 9.2)^{3/2}$
	72
	y = alog sec (nla)
	$\frac{dy}{dx} = \frac{a \times \sec x / a}{\sec x / a} + \frac{\tan x / a}{a}$
	$= \tan \frac{\pi}{a}.$
	y2 = sec ² 7/a x 1/a
	$\beta = (1 + \tan^2(x/a))^{3/2}$
	sec2(n1a) x 1/a
	$= (3ec^2(x/a))^{3/2} \times a = a3ec(x/a)$
	3ec2(21a)



3) B. t Jon the catenary y = c coshte /c), the radius of curvature is equal to y^2/c . $f = (1+y_1^2)^{3/2}$ $y_2 dy =$ $\frac{dy = c \sinh(\chi/c) \times 1}{c} = \sinh(\chi/c)$ $y_2 = \cosh (x/c) \times 1$ $\int = (1 + \frac{1}{6} \sinh^2 (x/c))^{3/2} c^{\frac{C}{2}}$ cosh (x/c) 8 = (cosh2(x/c))3/2 x c = c cosh2(x/c) - 0 $y^{2} = e^{2} (osh(x/e) - (2)$ 0 = 2 Hence proved. $\frac{d}{dx} \frac{d(s^{2}nhx) = coshx}{d(s^{2}nhx) = s^{2}nhx}$ $\frac{d}{dx} \frac{d(coshx) = sech^{2}x}{dx}$ $\frac{d}{dx} \frac{d(cosechx) = -cosechx cothx}{d(sechx) = -sechx tanhx}$ $\frac{d}{dx} \frac{d}{dx} \frac{d(cothx) = -cosech^{2}x}{dx}$ $\frac{d \left(\sin h^{-1} \chi \right)}{d \chi} = 1$ $\frac{1}{\sqrt{1 + \chi^2}}$ $\frac{d(losech^{-1}x) = -1}{dx}$ $\frac{d(8ech^{-1}x) = -1}{dx}$ $\frac{d(coth^{-1}x) = -1}{dx}$ $\frac{d(\cosh^{-1}x) = 1}{dx}$ $\frac{d(\tanh^{-1}x)=1}{1-x^2}$

$$\int \cos h x \, dx = \sin h x$$

$$\int \sin h x \, dx = \cosh x$$

$$\int \sec h^2 x \, dx = \tanh x \, dx = -\cosh x$$

$$\int \csc h x \, \tanh x \, dx = \operatorname{sech} x$$

$$\int \cos h x \, \tan h x \, dx = \operatorname{sech} x$$

$$\int \cot h x \, dx = -\coth h x$$

$$\int \frac{1}{1 + x^2} \, dx = -\cosh h x$$

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$$\int \frac{1}{1 - x^2} \, dx = -\cosh h x$$

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Find the radius of currature for the curre
  y2 = 4a2 (2a-x) where the curive meets the x-ows
  0 = \frac{4a^2(2a-x)}{x} (: # meets x-axis)
= x = 2a
(20,0) is the point on the warve at which I should be The given equ can be put in the form:
                                                                                  found.
 y^{2} = 8a^{2} - 4a^{2}
2yy_{1} = -8a^{3} \times \Rightarrow y_{1} = -4a^{3}
x^{2}
At (2a,0), y_1 = \infty and hence we have to consider \frac{dx}{dy}.

x_1 = dx = -x^2y.

\frac{dy}{dy} = \frac{1}{4}x^3 x_1 = 0 at (2a,0)
\chi_2 = -1 \left(2\chi\chi_1 + \chi^2\right)
 A+(20,0), \chi_2 = -\frac{1}{a}
 \beta = (1 + \chi_1^2)^{3/2}
   Find radius of curvature for the curve x^2y = a(x^2+y^2) at (-2a, 2a) 2xy + x^2y = a(2x + 2yy) 2xy - 2ax = y(2y - x^2)
  y, = 2/4y - ax) at (-2a, 2a), y, = 0
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x1 = 2xx1y+ y2 = a(2xx1+2y) classmate
$\chi_1(2xy-2ax)=2ay-x^2$ Date Page
$\chi_1 = 2\alpha y - \chi^2$
2ng-2an at (-20,2a), x1=0.
x2 -> (2xy - 2ax) (2a - 2xx,) - (2ay - x2) (2x +2yx, -2ax,)
$(2xy-2ax)^{2}$
a+ (-2a, 2a), (-8a2+4a2) (2a) - (4a2+4a2) (
$(-8a^2+ua^2)^2$
$=$ $2\alpha = -1$
-4a² 2a
$g = (1 + \chi_1^2)^{3/2} = 1 = -2\alpha$
72 - 1/20
S = 2a