circles

x = h +- r*cos(t)
y = h -+ r*sin(t)
center = (h,k)

2t makes it go around twice
-t makes it go around backwards

rectangl

ArcLenth: L = ϟ root(1 + f'(x)^2)

Suface of Revolution:
X-axis: S = ϟ root(1 + f'(x)^2) * 2 ◔ f(x)
Y-axis: S = ϟ root(1 + f'(x)^2) * 2 ◔ x

Volum of Revolution:
X-axis: S = ϟ ◔ f(x)^2
Y-axis: S = ϟ ◔ x^2

ϟ
◔

Parmetric

deriv:
dy/dx = y'/x'
dy^2/dx^2 = (dx/dy)'/x'

ArcLenth: L = ϟ root((dx/dt)^2 + (dy/dt)^2)

(dx/dt)^2 =
(dy/dt)^2 =

convertoin

x = rsin ◴	r = root(x^2 + y^2)
y = rcso ◴	◴ = tan^{-1}(y/x)

Polar

Area: A = 1/2 ϟ (f(◴))^2

ArcLenth: L = ϟ root((r)^2 + (dr/d◴)^2)

conic

r = ed/(1+ecos◴)	r = ed/(1-ecos◴)
r = ed/(1+esin◴)	r = ed/(1-esin◴)

left	right
down	up

r =

e	how you tell the type
d	deretix: for cos x = d for sin y = d

centrodids

$\bar{x}$ = 1/ ϟ (f(x)-g(x)) * ϟ x*[f(x)-g(x)]

$\bar{y}$ =1/ ϟ (f(x)-g(x)) * ϟ 1/2*[f(x)^2-g(x)^2]

if g(x) = x-axis you can just drop it

trig

	◔/6	◔/4	◔/3
sin	1/2	root(2)/2	root(3)/2
cos	root(3)/2	root(2)/2	1/2
tan	root(3)/2	1	root(3)

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