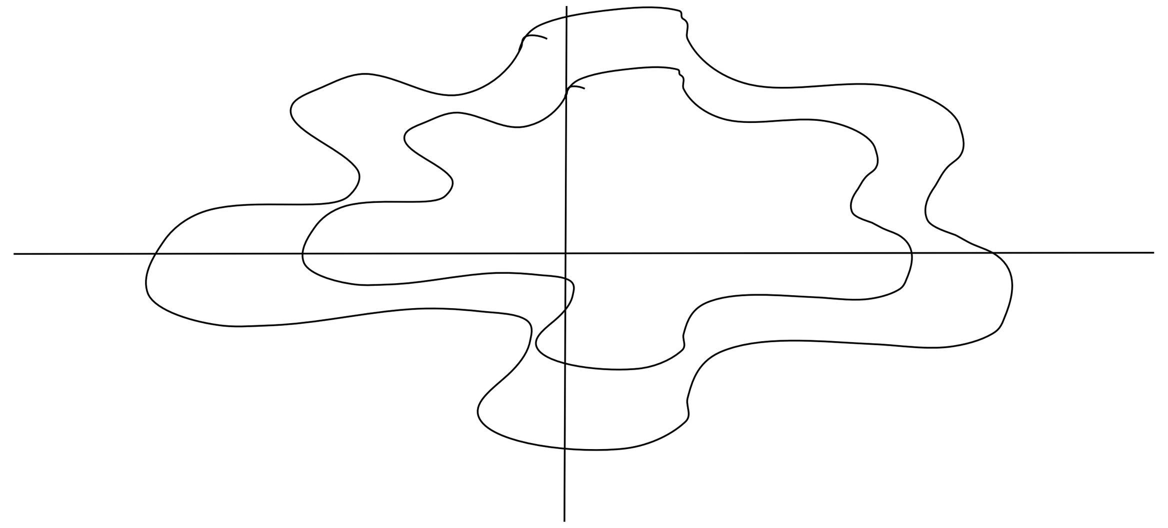
$$x_d(t) = x(t) + \frac{d\, y'(t)}{\sqrt{x'(t)^2 + y'(t)^2}}$$

$$y_d(t) = y(t) - \frac{d\, x'(t)}{\sqrt{x'(t)^2 + y'(t)^2}}$$

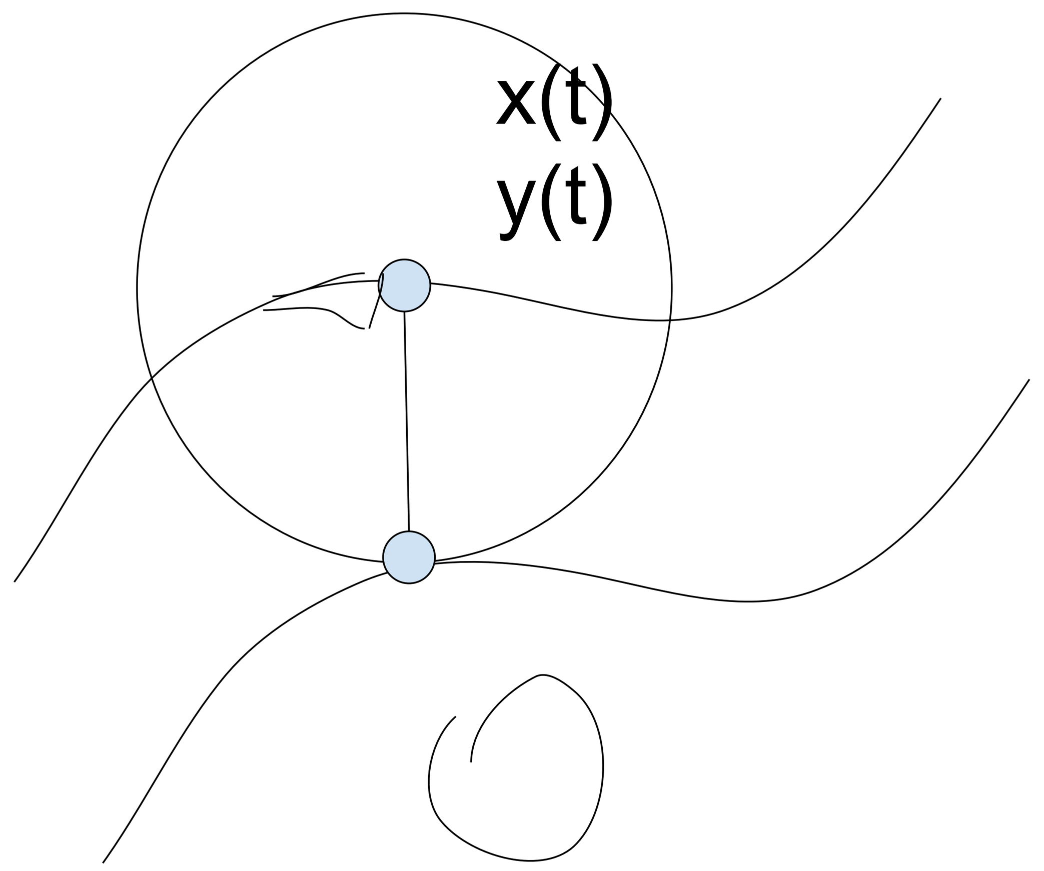


Расстояние d от точки $M_0(x_0,y_0)$ до прямой, заданной уравнением общего вида Ax+By+C=0 определяется по формуле:

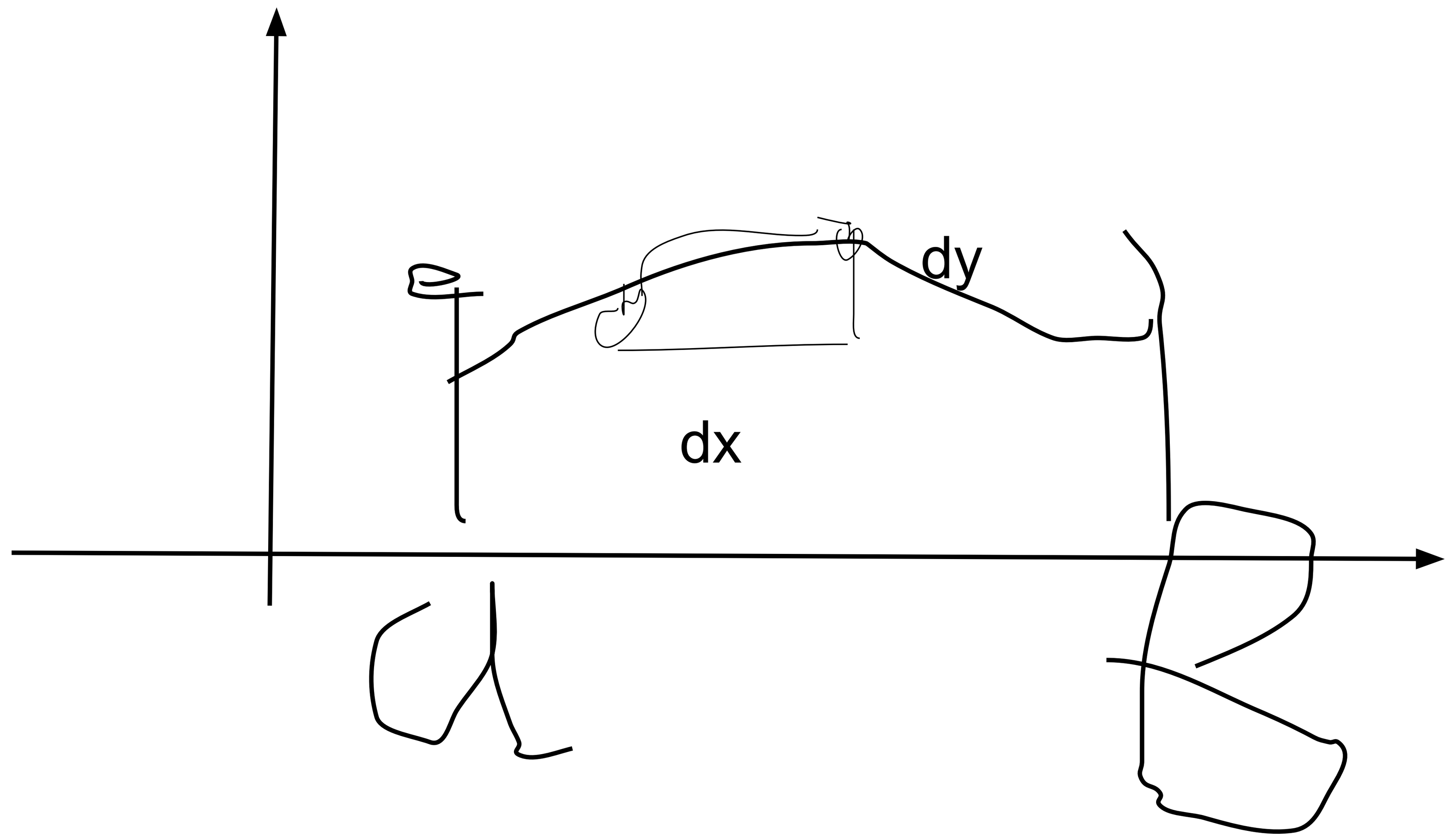
$$d = \frac{|Ax_0 + By_0 + C|}{\sqrt{A^2 + B^2}}$$

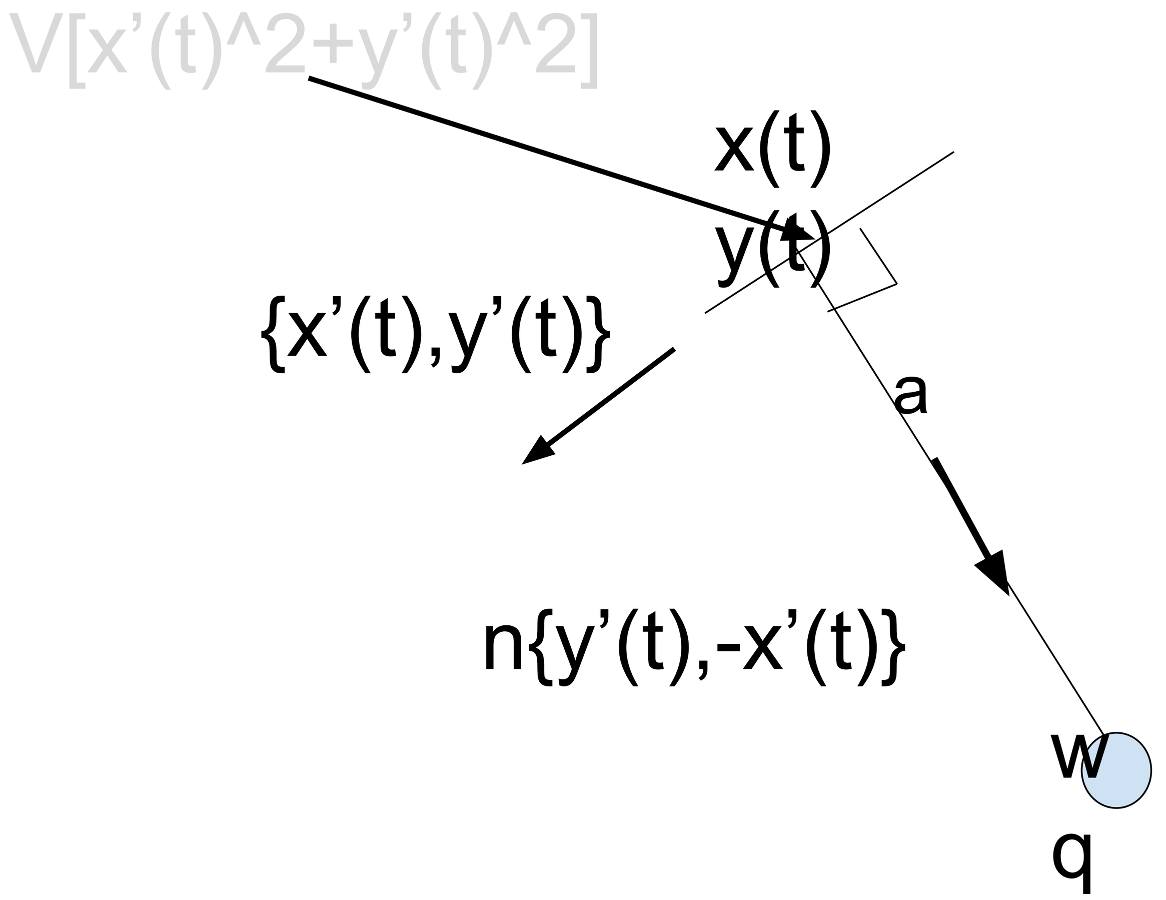
L=V(dx^2 + dy^2)
y=y(t) dy/dt=y’(t) dy=y’(t)dt
x=x(t) dx/dt=x’(t) dx=x’(t)dt

S[a;b] V(dx^2 + dy^2)=S[a;b] V(1 + (dy/dx)^2) dx
S[a;b] V(dx^2 + dy^2)=S[a;b] V(y’(t)^2 + x’(t)^2)dt

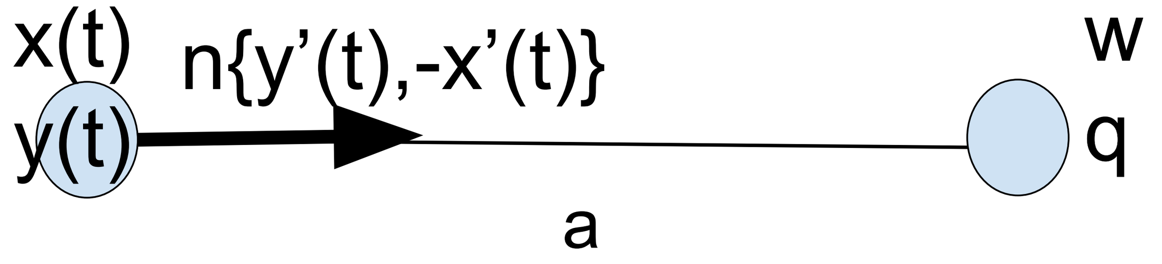


общее
Ax+By+C=0
Ax=-(By+C)
каноническое
Ax/(-B)=(y+C/B)
x/(-B)=(y+C/B)/A=t
параметрическое
x=-Bt
y=At + C/B



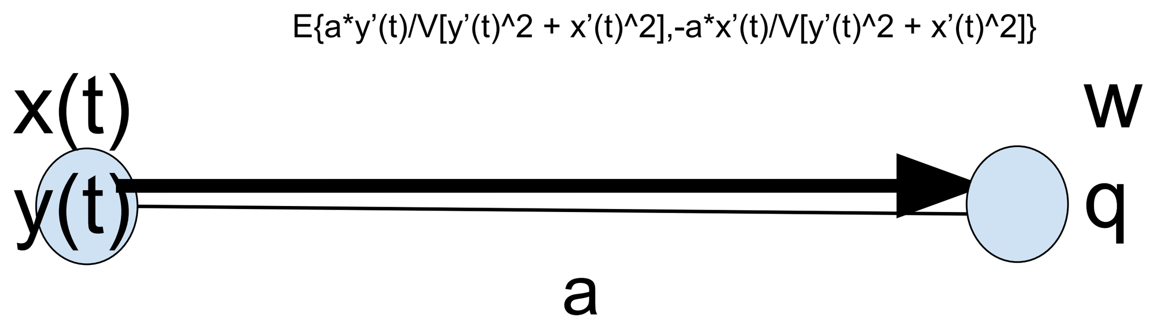


n{y’(t),-x’(t)}*g=s{w-x(t),q-y(t)}
w=x(t)+g*y’(t)
q=y(t)-g*x’(t)



a^2=(w-x(t))^2 + (q-y(t))^2
[w-x(t)] / y’(t) = [q - y(t)] / -x’(t)

n{y’(t),-x’(t)}
|n|=V[(y’(t))^2 + (-x’(t))^2]=V[y’(t)^2 + x’(t)^2]
e=n/|n|={y’(t)/V[y’(t)^2 + x’(t)^2],-x’(t)/V[y’(t)^2 + x’(t)^2]}
E{a*y’(t)/V[y’(t)^2 + x’(t)^2],-a*x’(t)/V[y’(t)^2 + x’(t)^2]}



w - x(t) = a*y’(t)/V[y’(t)^2 + x’(t)^2]
q - y(t)=-a*x’(t)/V[y’(t)^2 + x’(t)^2]

w = x(t) + a*y’(t)/V[y’(t)^2 + x’(t)^2]
q =y(t) -a*x’(t)/V[y’(t)^2 + x’(t)^2]