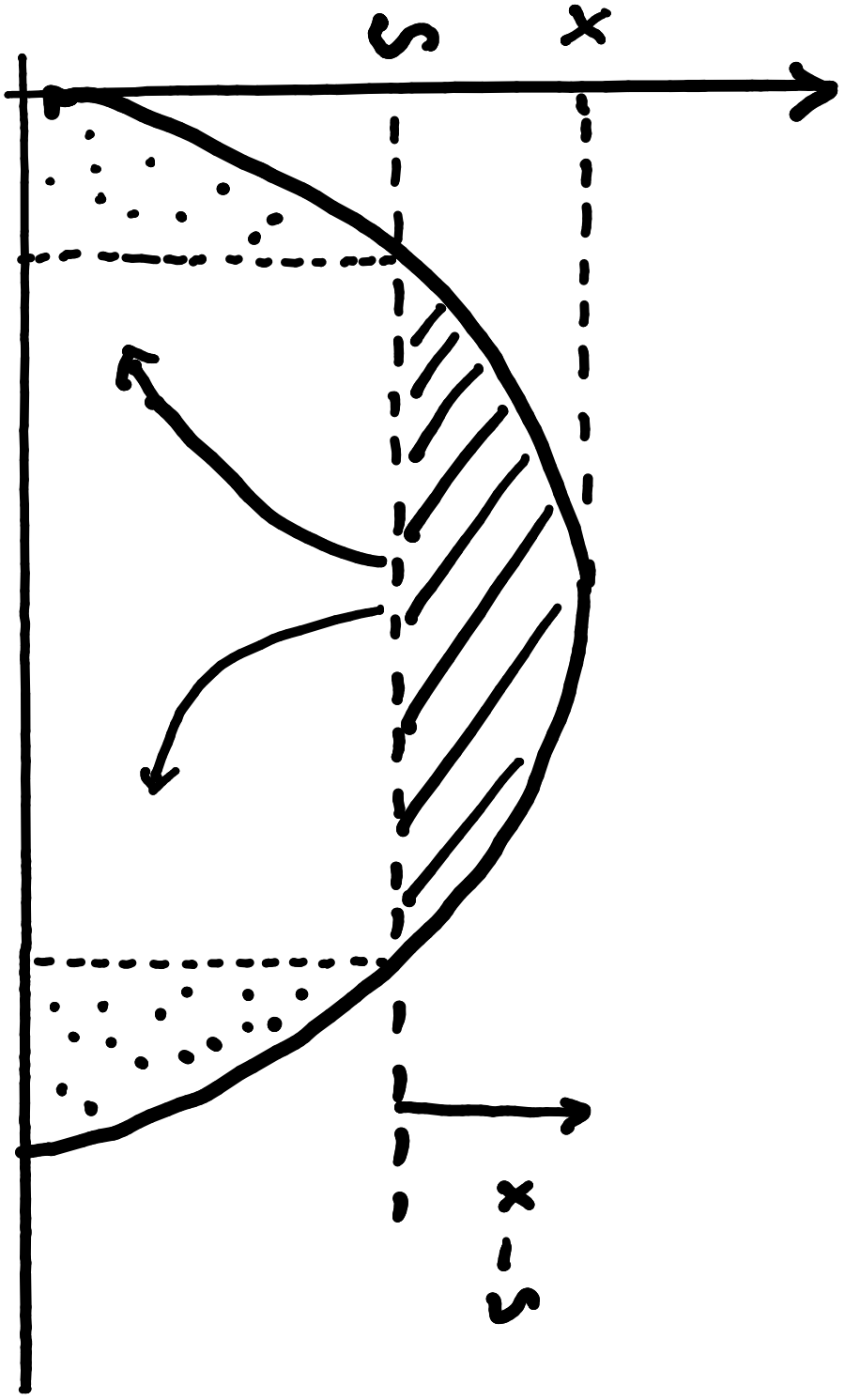
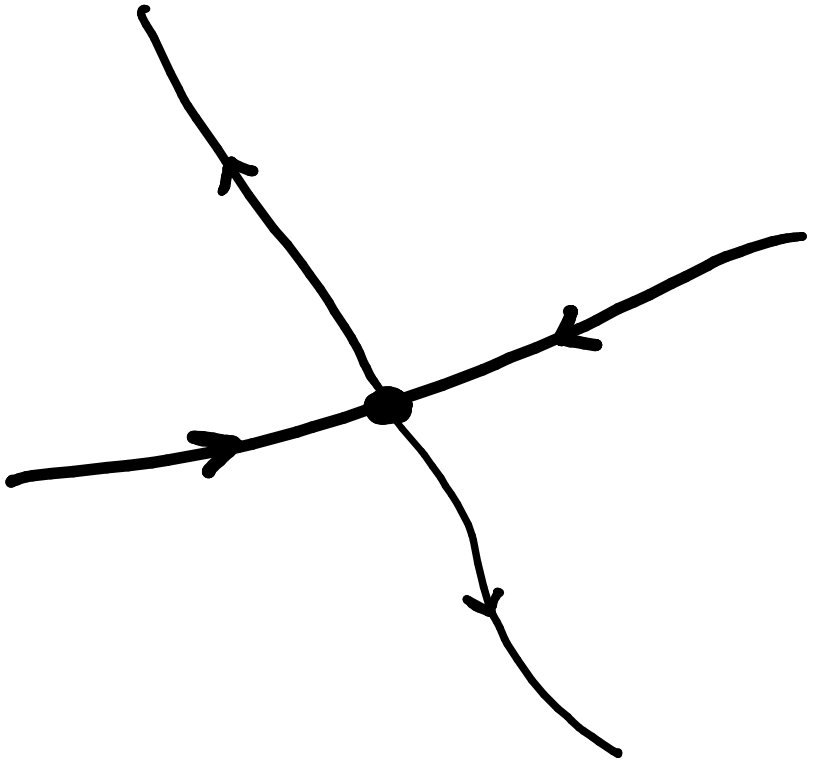
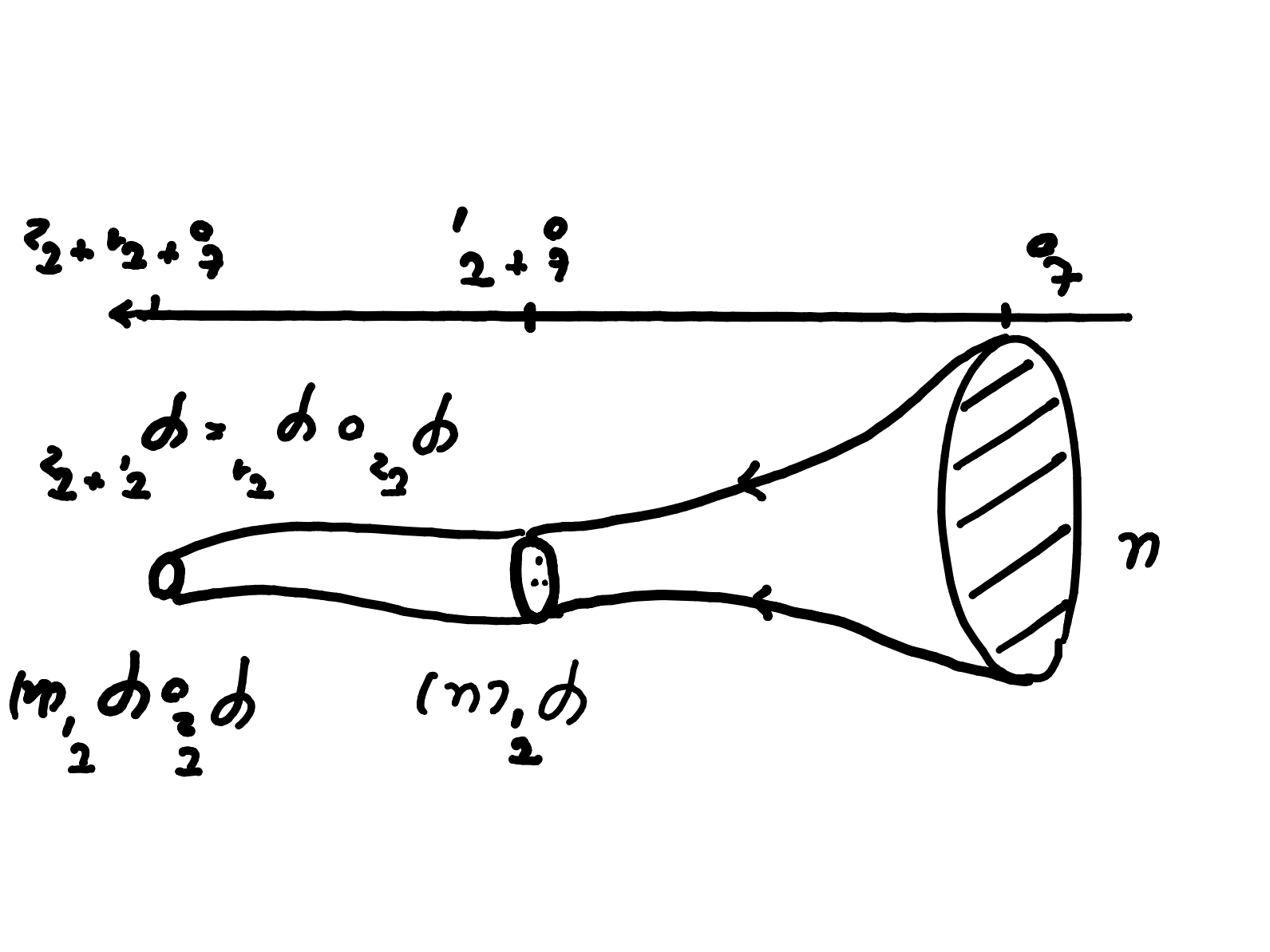
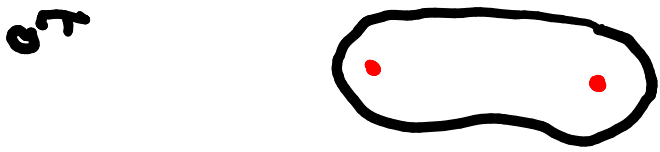

s
x
x - s

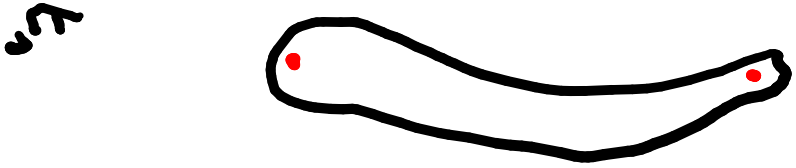
S
1
$\sigma = f_x$
$x = 2(1-\sqrt{1-S})$
$x = 2(1+\sqrt{1-S})$
f_x

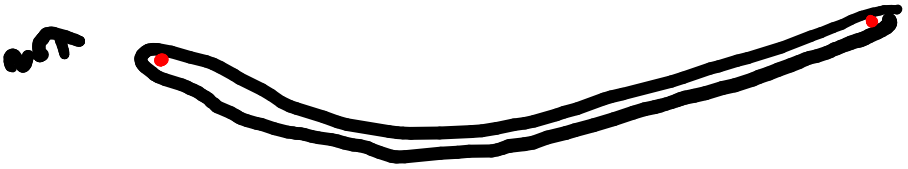
f_x
$x = 2(1+\sqrt{1-s})$
$x = 2(1-\sqrt{1-s})$
$x = f_x$
0
1
s



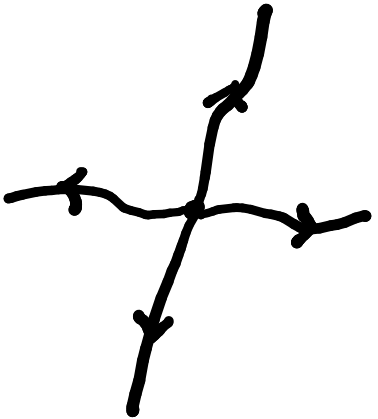




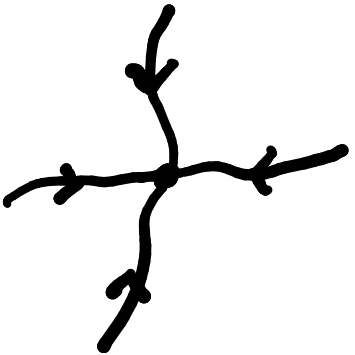




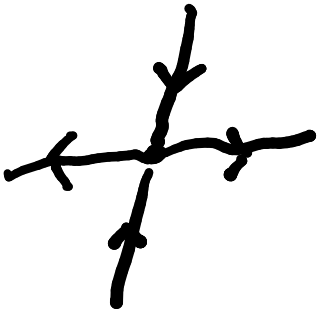
SOURCE

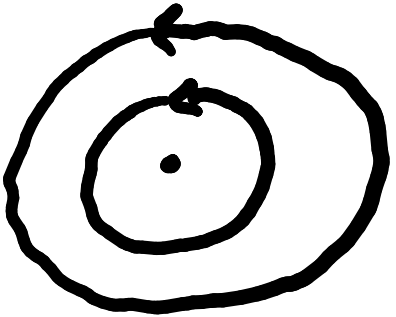


SINK



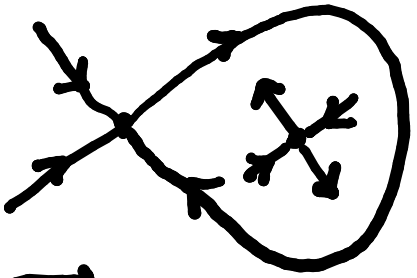
SADDLE



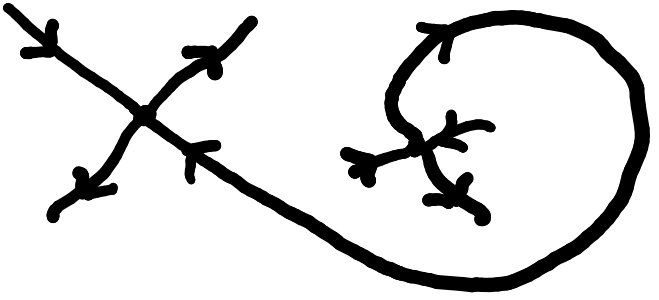


CENTER

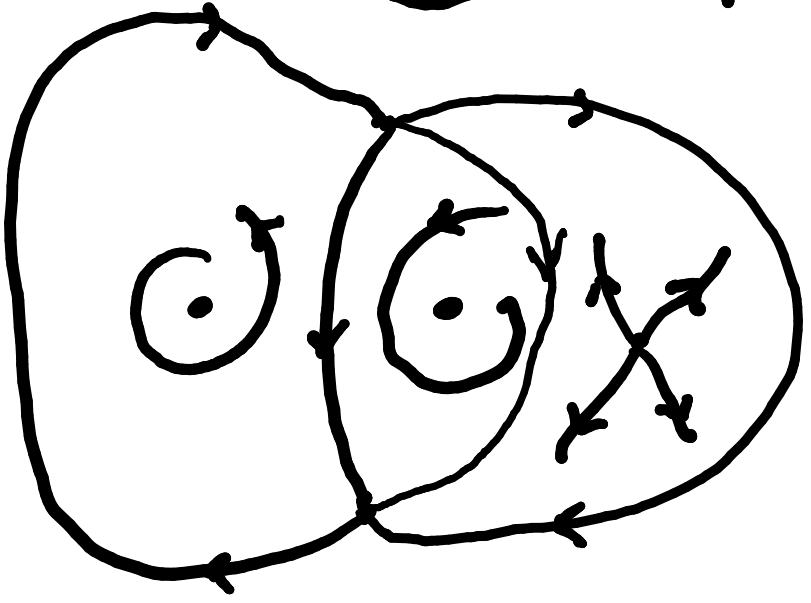
(a)



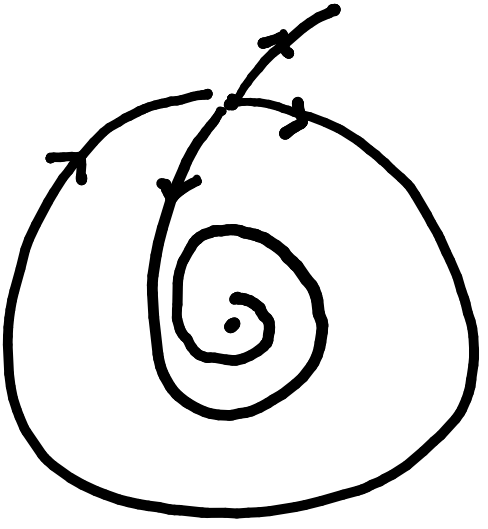
(b)

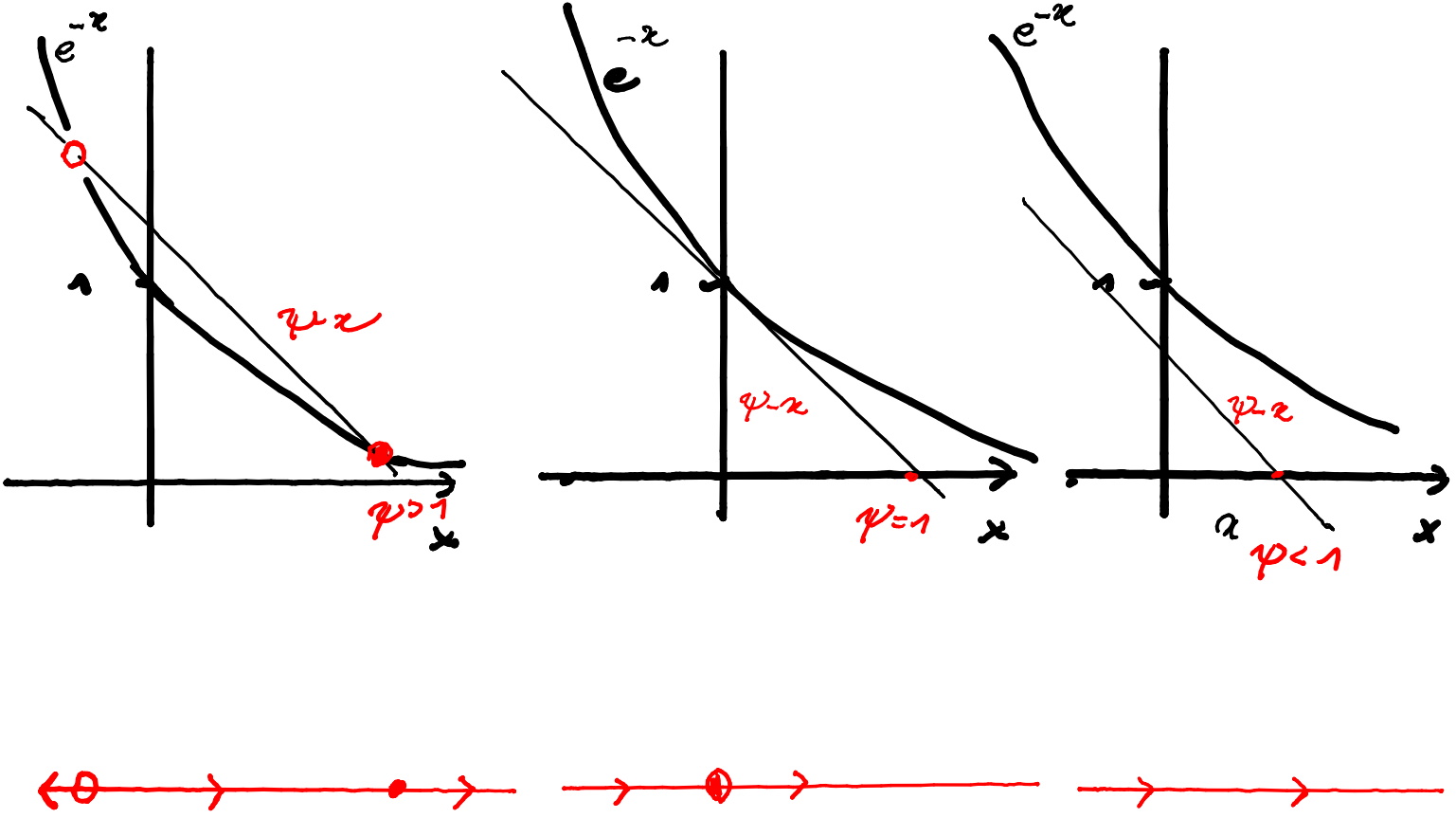


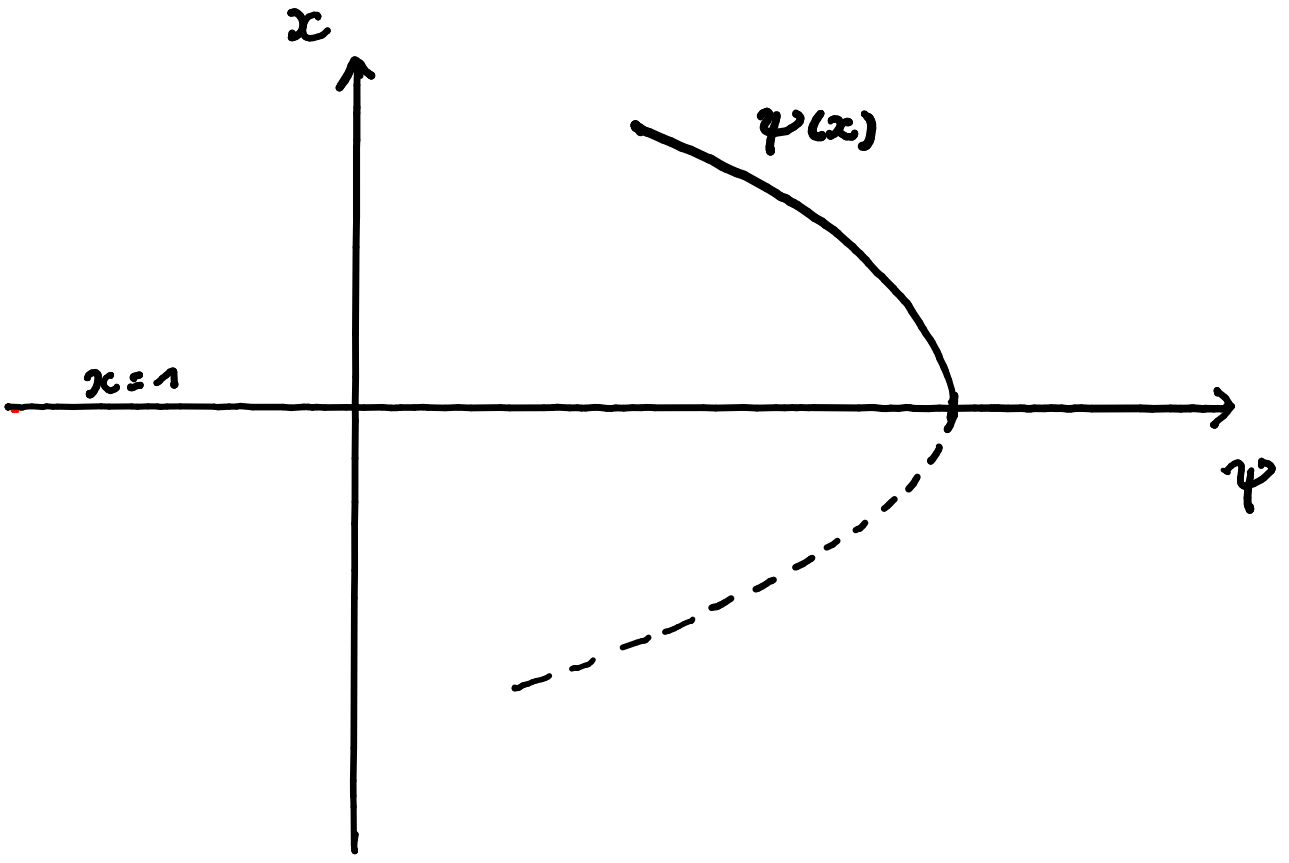
(c)

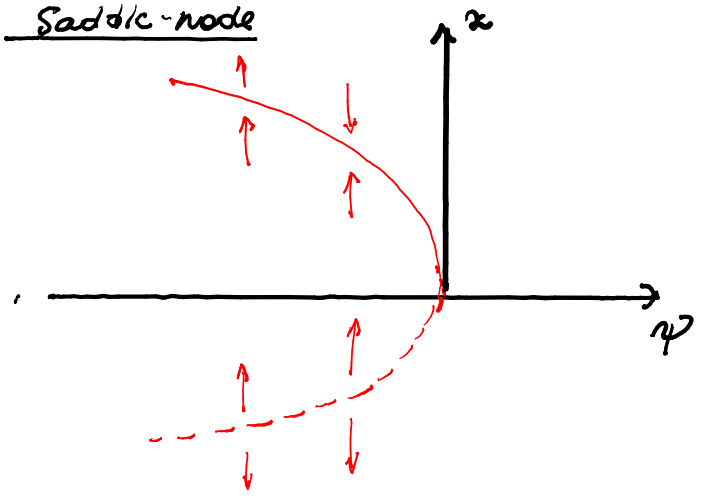


(d)

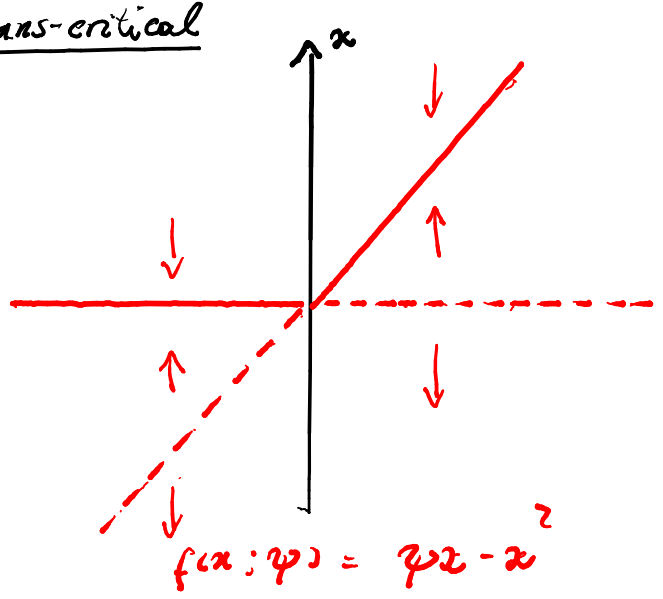



e^{-x}
1
ψx
$\psi=1$
x
e^{-x}
1
ψx
$\psi=1$
x
e^{-x}
1
ψx
a
$\psi<1$
x

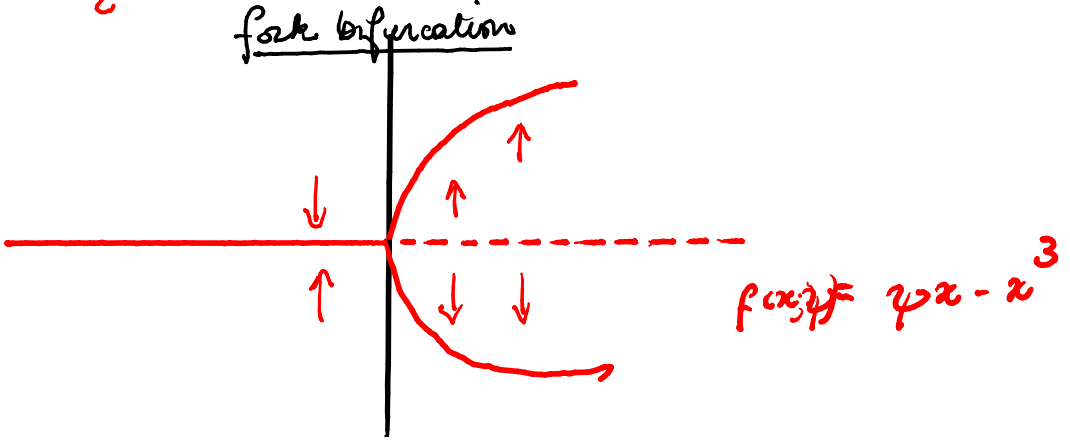

x
ψ(x)
x=1
ψ



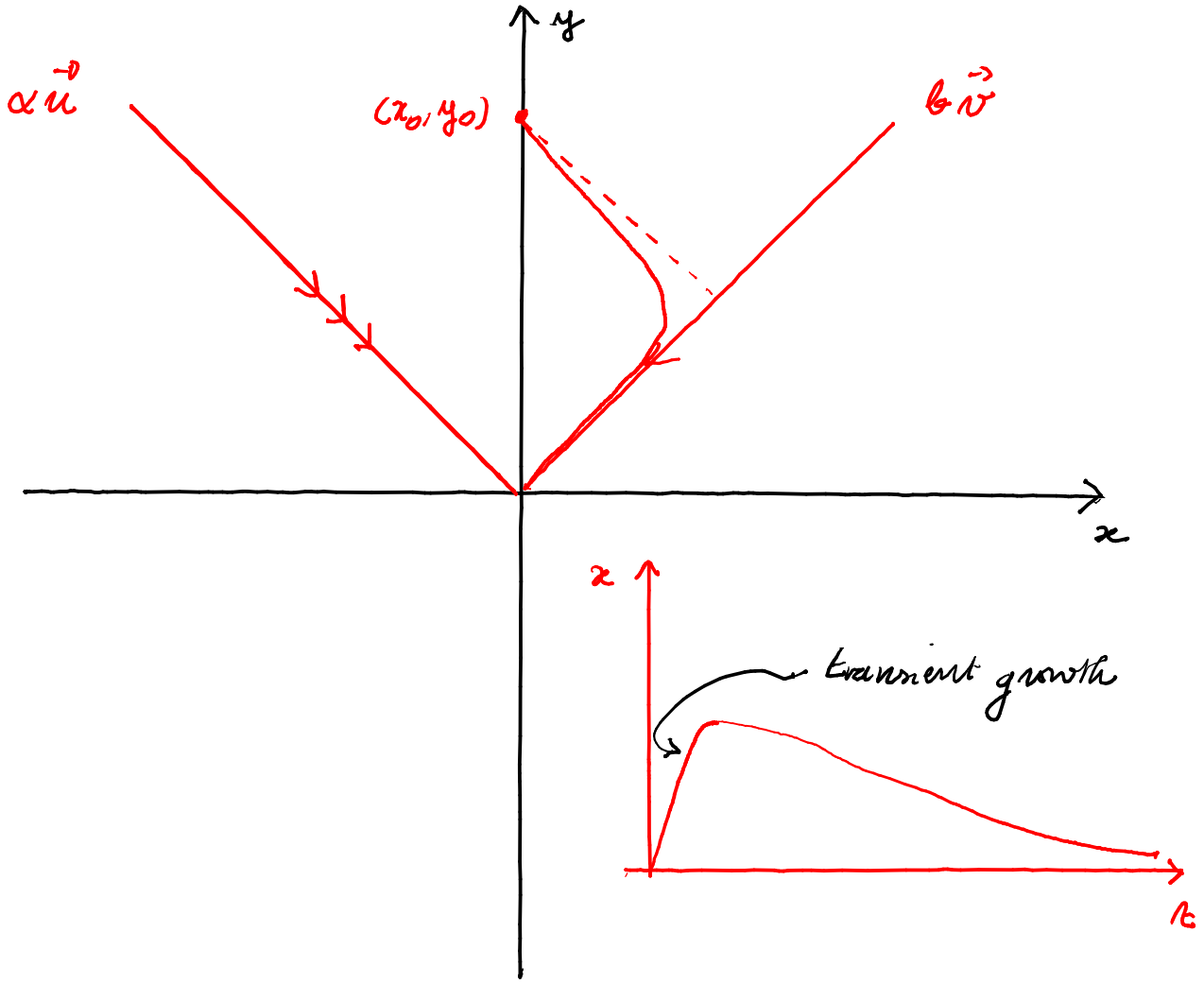
$f(x;\psi) = \psi - \frac{1}{2}x^2$

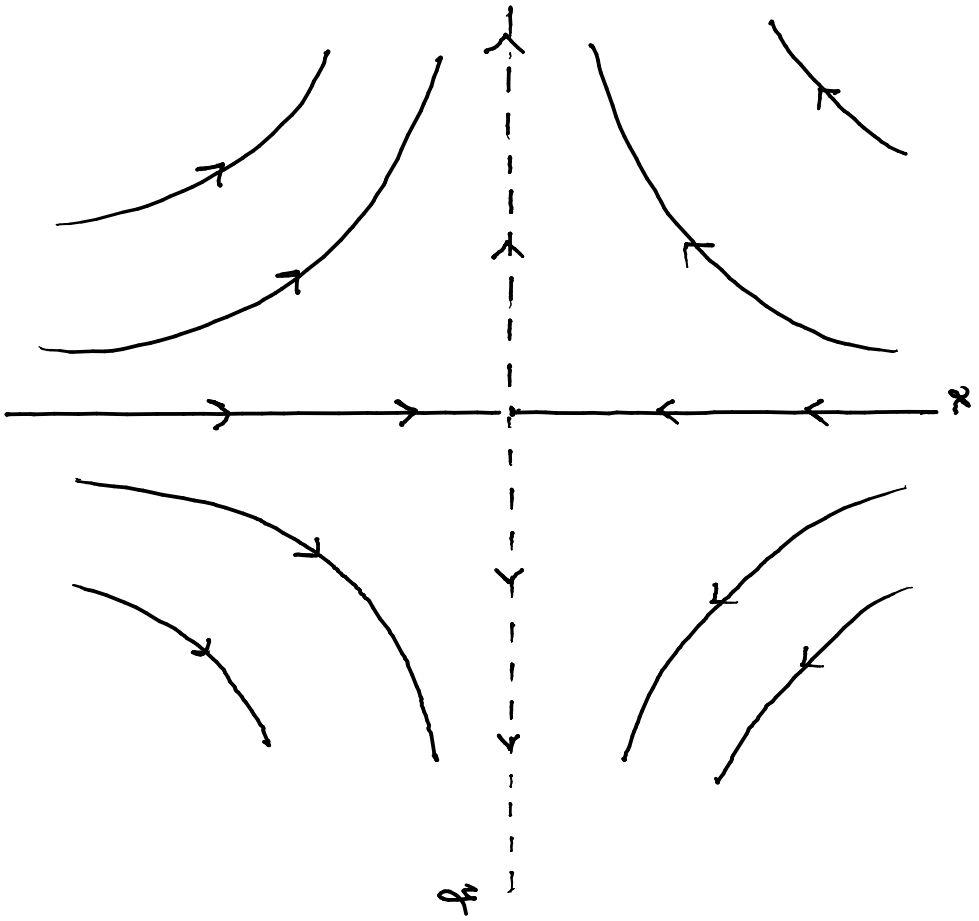


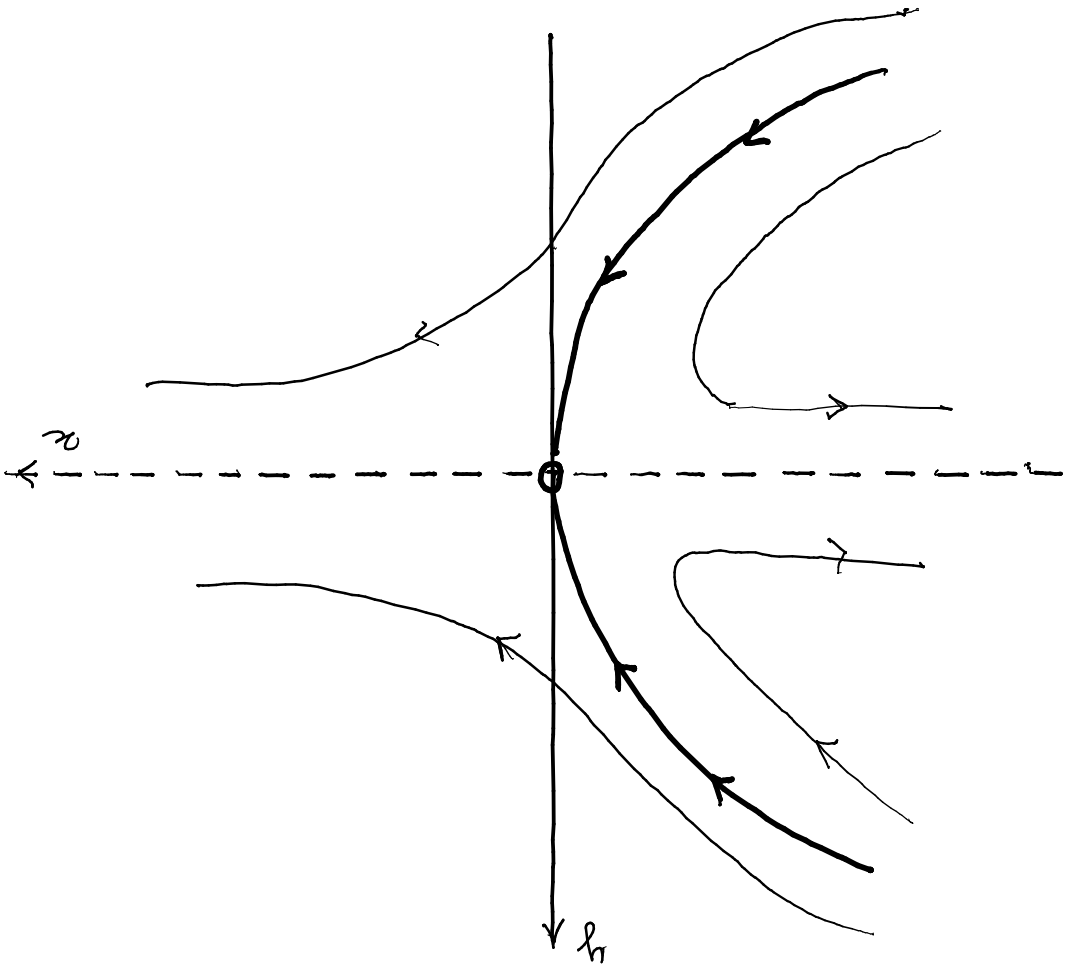
$f(x;\psi) = \psi x - x^2$

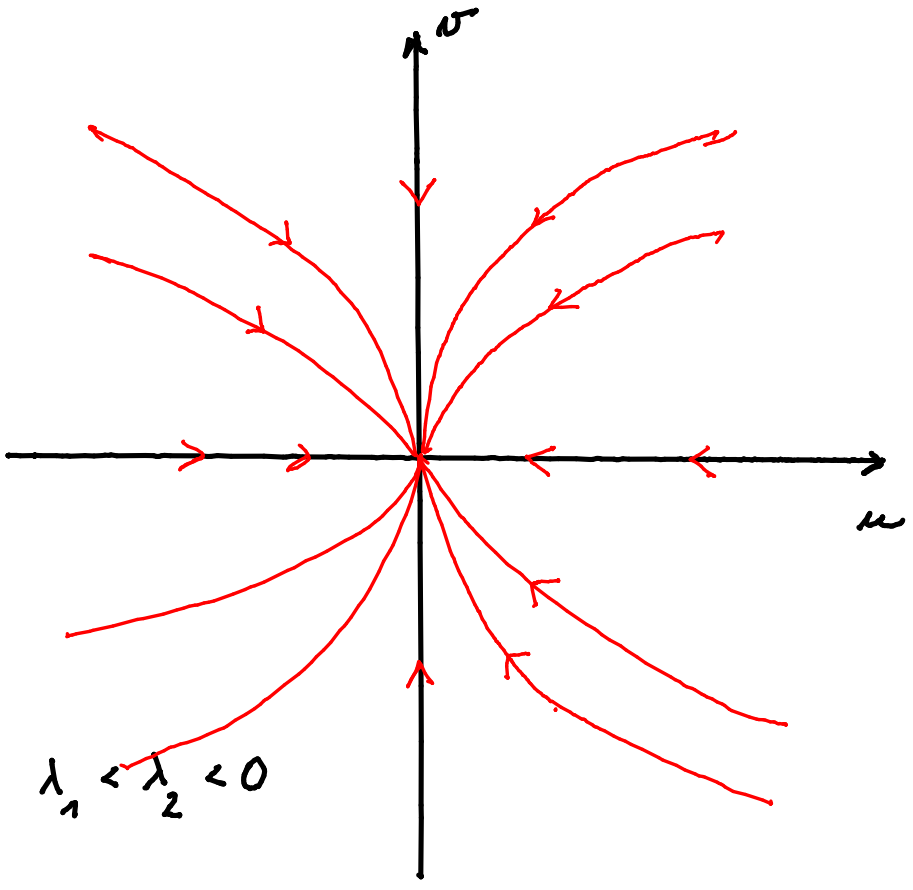


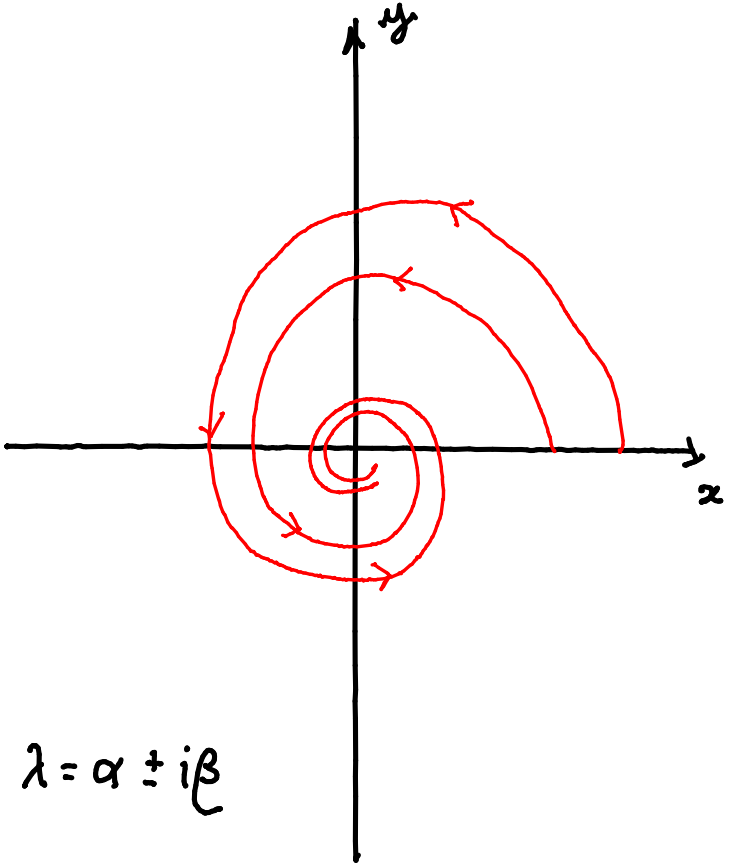
$f(x;\psi) = \psi x - x^3$


y
$\alpha \vec{u}$
(x_0, y_0)
$\beta \vec{v}$
x
x
transient growth
t


x
p


x
h

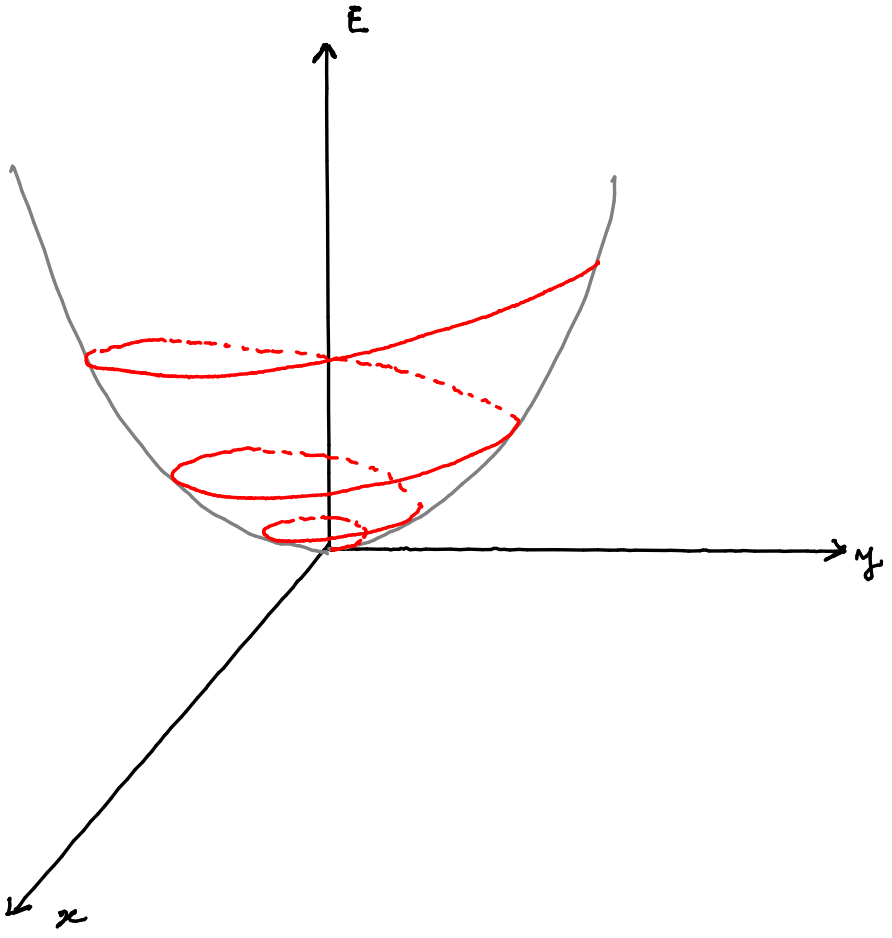

v
u
$\lambda_1 < \lambda_2 < 0$



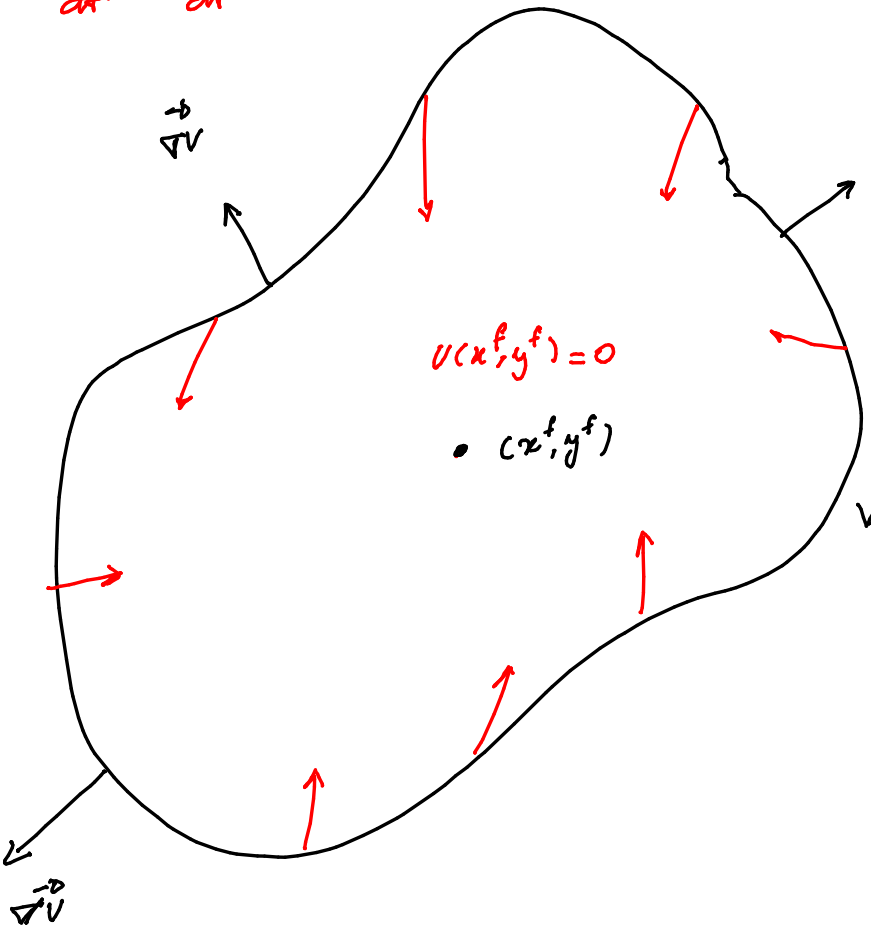
$\lambda = \alpha \pm i\beta$

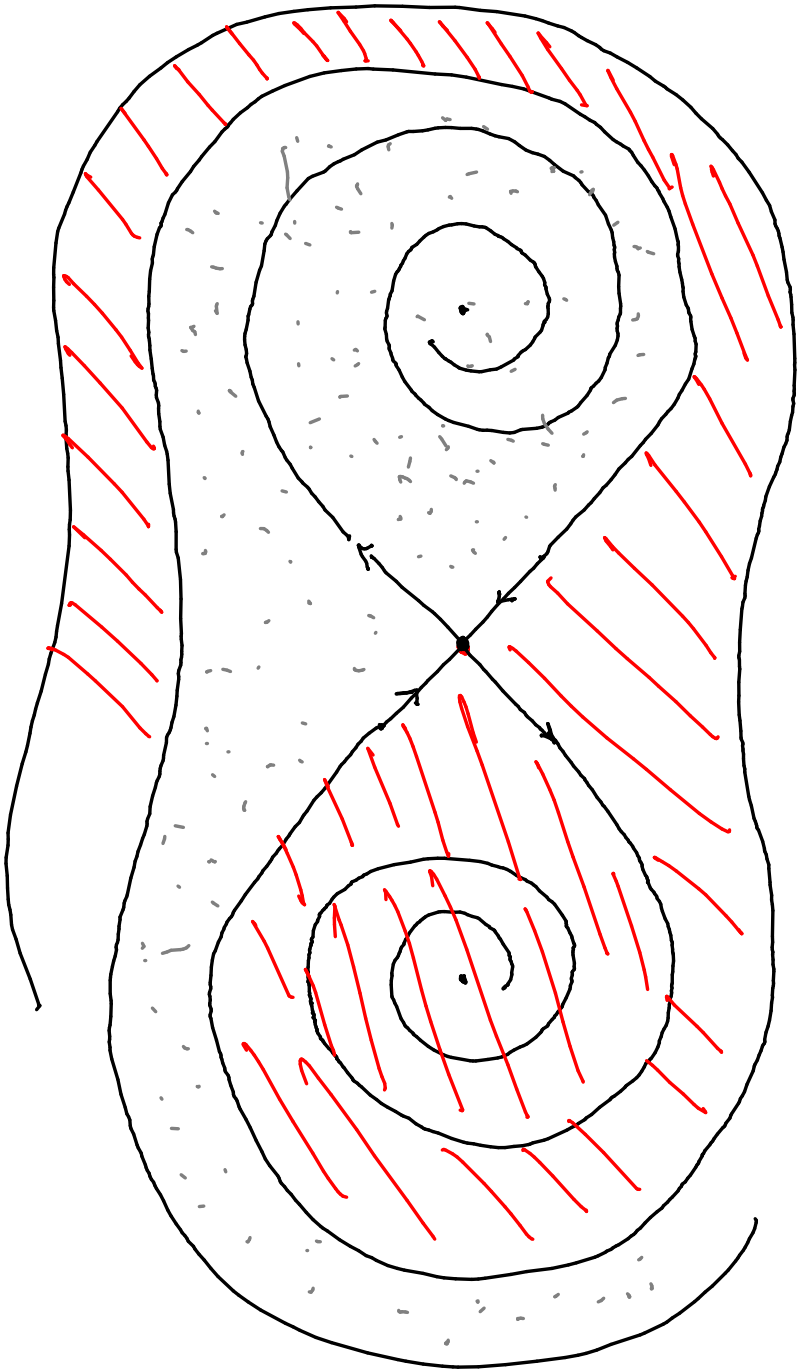
$\alpha < 0$

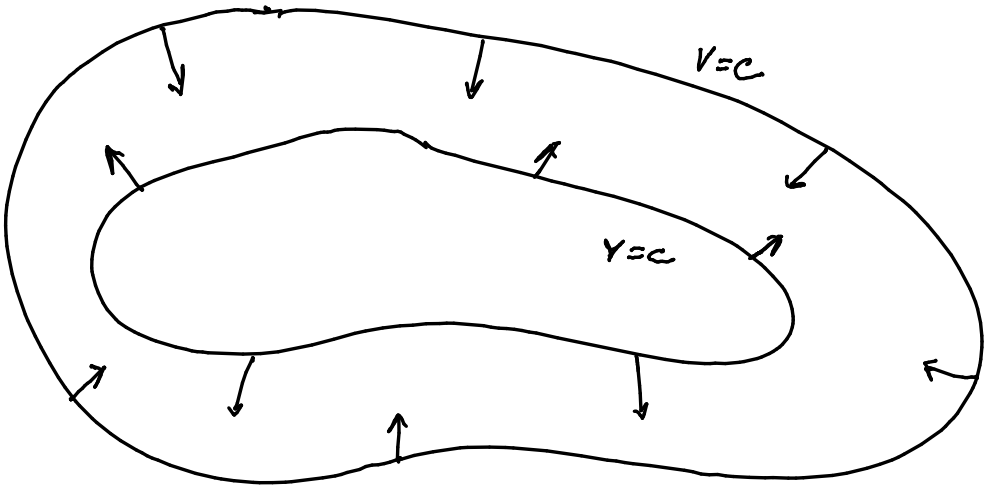
$\lambda > 0$
$T = (x, y)$
$J = \begin{pmatrix} \lambda & 1 \\ 0 & \lambda \end{pmatrix}$
x
y

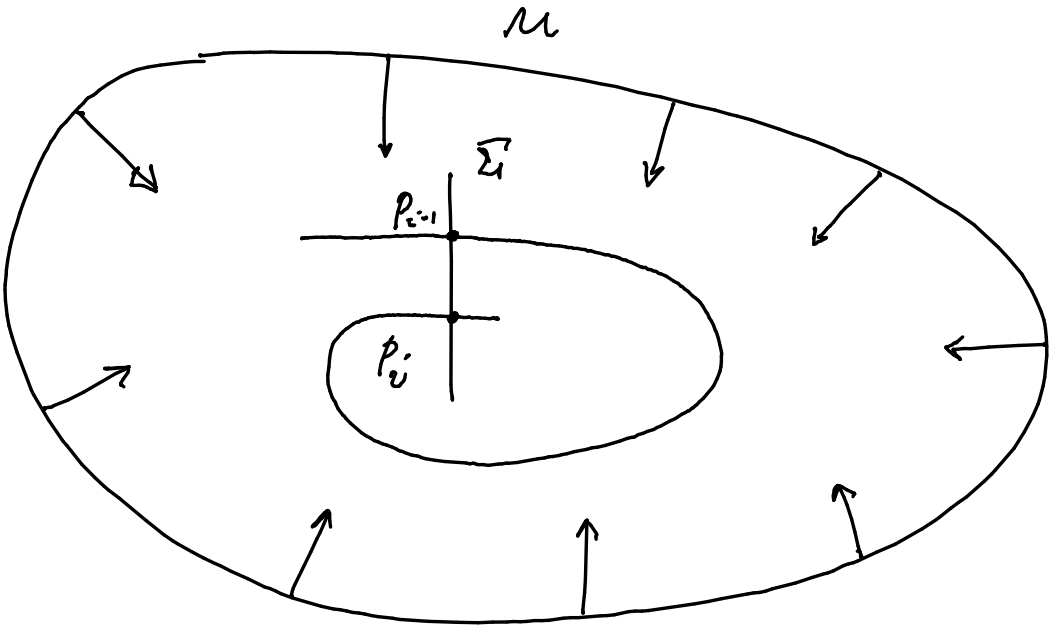

E
y
x

$$\frac{dV}{dt} = \frac{d\vec{x}}{dt} \cdot \vec{\nabla} V < 0$$






V=C
V=C


$\mathcal{M}$
Σ_i
p_{i+1}
p_i