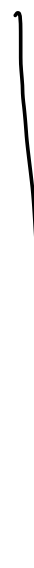
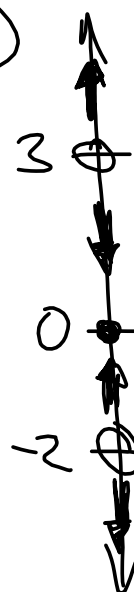
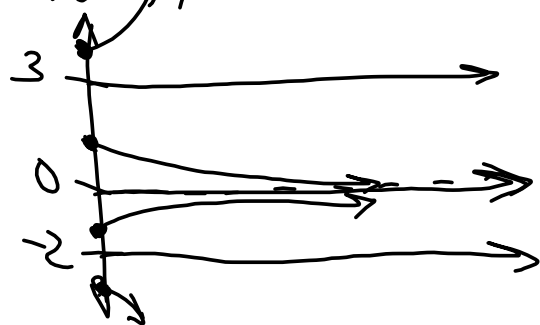
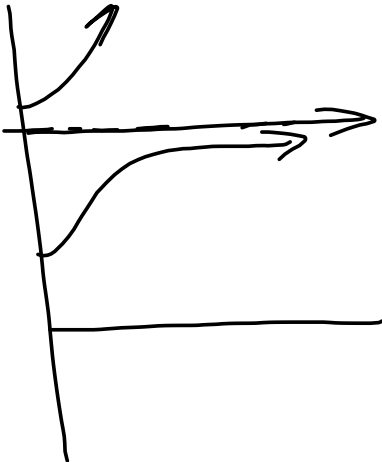
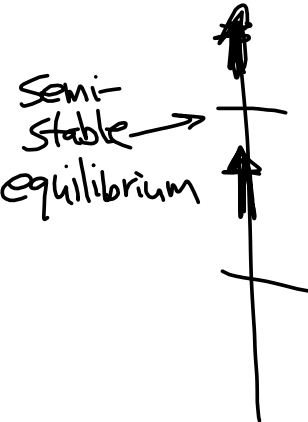


Draw a phase diagram (portrait)
for

$$\frac{dy}{dt} = y(y+2)(y-3)$$





Newton's Law of Cooling

$$\frac{dT}{dt} = -k(T - T_m)$$

T is temp
t is time

$k > 0$ is constant
temp of medium

$$\frac{dT}{dt} = -k(T - 72)$$

$$T(0) = 143^\circ F$$

~~$$dT = -k(T - 72)dt$$~~

$$\frac{dT}{T - 72} = -k dt$$

$$\frac{dT}{dt} = -kT + 72k$$

$$\frac{dT}{dt} + kT = 72k$$

$$T = k_1 e^{-kt}$$

$$T(2) = 110^\circ$$

$$L \frac{di}{dt} + Ri = F$$

if a #, separation or I.F.
If function of t , I.F. integrating factor