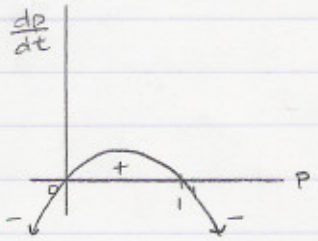
Key

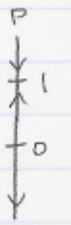
Math 19 Problem Set #2: pg. 62-63 Ex. 1-4

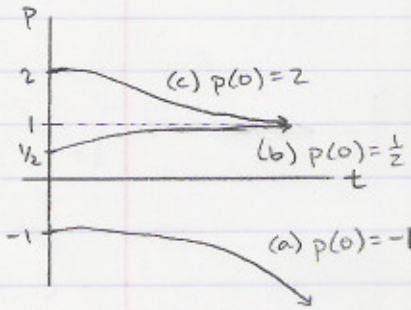
1. $\frac{dp}{dt} = p(1-p)$

$= p - p^2$

$\frac{dp}{dt} = 0$ at $p=0, p=1$



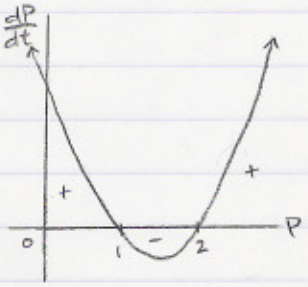


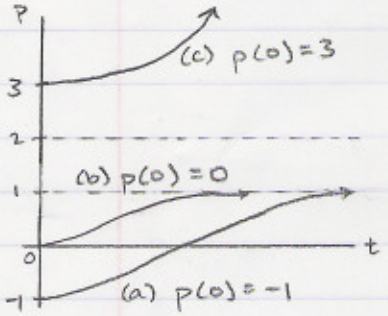


2. $\frac{dp}{dt} = (p-1)(p-2)$

$= p^2 - 3p + 2$

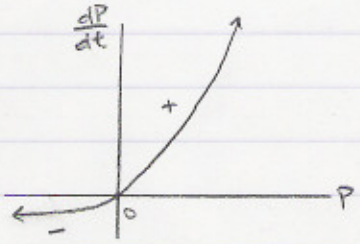
$\frac{dp}{dt} = 0$ at $p=1, p=2$

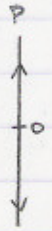


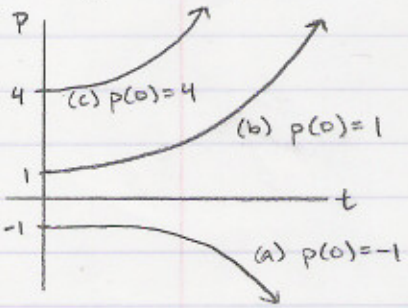


3. $\frac{dp}{dt} = e^p - 1$

$\frac{dp}{dt} = 0$ at $p=0$

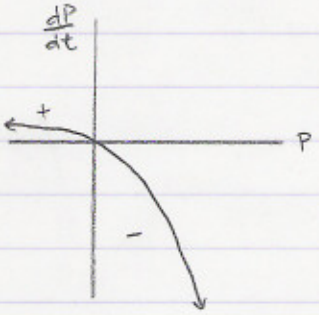


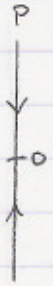


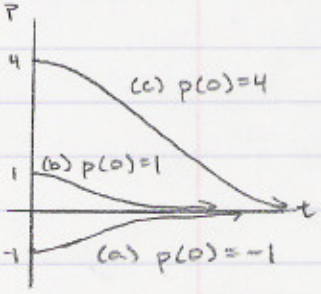


4. $\frac{dp}{dt} = 1 - e^p$

$\frac{dp}{dt} = 0$ at $p=0$







Notes: - phase-line diagrams were not required; they are included here because they may be helpful for graphing p(t) - helpful, but not necessary.

- we are not concerned with the concavity of p(t) yet.